ORDER NO. KM40311283C3

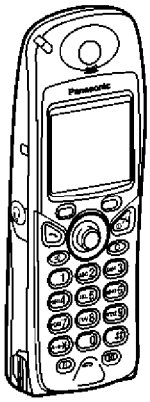
Service Manual

Telephone Equipment

KX-TCD540NZM
KX-TCA154AZM

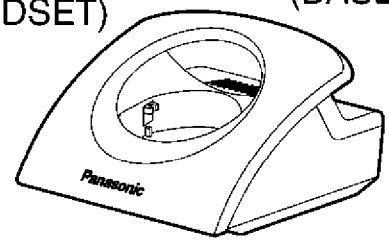
Digital Cordless Answering System
Metallic Grey Version
(for New Zealand)

Caller ID Compatible



KX-TCA154AZM
(CORDLESS HANDSET)

KX-TCD540NZM
(BASE UNIT)



(CHARGER UNIT)

Configuration for each model

Model No	Base Unit	Cordless Handset	Charger Unit
KX-TCD540	1	1(TCA154)	1
KX-TCA154		1	1

KX-TCA154 is also an optional accessory, which contains a cordless handset and a charger.

SPECIFICATIONS

SPECIFICATION

Standard:	DECT= (Digital Enhanced Cordless Telecommunications) GAP=(Generic Access Profile)
Number of channels:	120 Duplex Channels
Frequency range:	1.88 GHz to 1.9 GHz
Duplex procedure:	TDMA (Time Division Multiple Access)
Channel spacing:	1728 kHz
Bit rate spacing:	1152 kbit/s
Modulation:	GFSK= (Gaussian Frequency Shift Keying)
RF Transmission Power:	approx. 250 mW
Voice coding:	ADPCM 32 kbit/s
Operation range:	Up to 300 m outdoors, Up to 50 m indoors
Analog telephone connection:	Telephone Line

Power source:	AC Adaptor (220 V - 240 V AC, 50 Hz)
Power consumption, Base Unit:	Standby: Approx. 2.6 W/Maximum: Approx. 9.2 W
Charger Unit:	Standby: Approx. 2.3 W/Maximum: Approx. 6.8 W
Battery life, Cordless Handset (if batteries are fully charged):	Stand-by: Up to 180 hours (Ni-MH) Talk: Up to 10 hours (Ni-MH)
Operating conditions:	5 - 40 °C, 20 - 80 % relative air humidity (dry)
Dimensions, Base Unit (D x W x L):	53 mm x 205 mm x 197 mm
Dimensions, Cordless Handset (D x W x L):	143 mm x 48 mm x 32 mm
Dimensions, Charger Unit (D x W x L):	60 mm x 86 mm x 84 mm
Weight, Base Unit:	about 670 g
Weight, Cordless Handset:	about 125 g
Weight, Charger Unit:	about 113 g
Connection jack:	RJ11 Plug

Specifications are subject to change.
The illustrations used in this manual may differ slightly from the original device.

IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING
If lead free solder was used in the manufacture of this product the printed circuit boards will be marked PbF.
Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.
When this mark does appear please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you note the serial number, write down all 11 digits. The serial number may be found on the bottom of the unit.

Panasonic

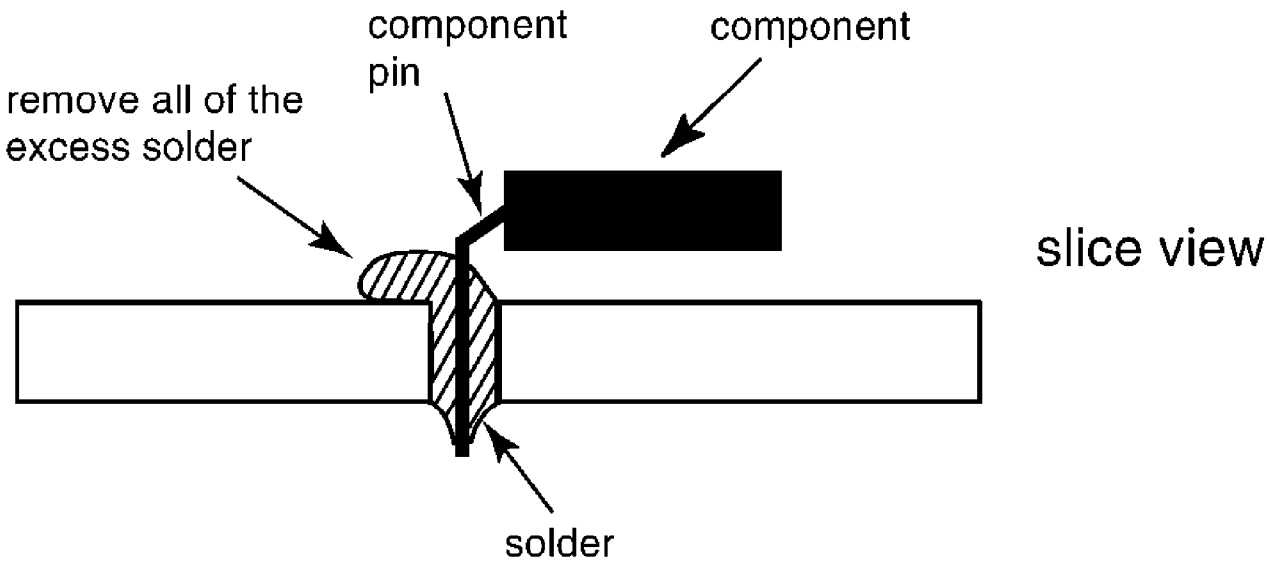
1. ABOUT LEAD FREE SOLDER (PbF: Pb free)

Note:
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.
We will use PbF solder when discussing the lead free solder used in our manufacturing process which is made from Tin (Sn), Silver (Ag), and Copper (Cu).

This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder although, with some precautions, standard Pb solder can also be used.

Caution

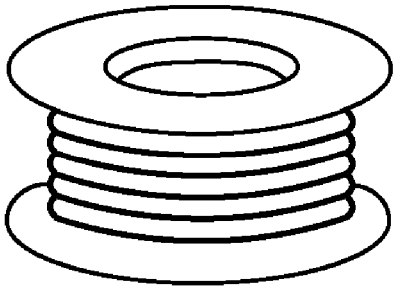
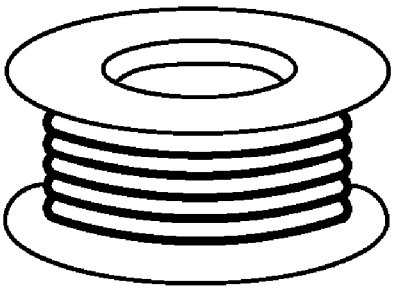
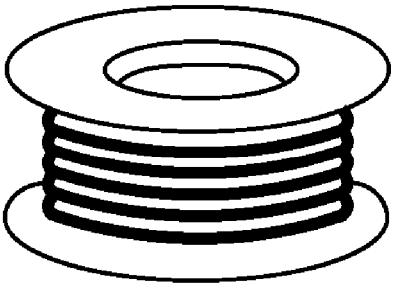
- **PbF solder has a melting point that is 50°F ~70°F (30°C ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700°F ± 20°F (370°C ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.**
- **PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F (600°C).**
- **If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.**
- **When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See the figure below).**



1.1. Suggested PbF Solder

There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper (Sn+Ag+Cu), you can also use Tin and Copper (Sn+Cu) or Tin, Zinc, and Bismuth (Sn+Zn+Bi). Please check the manufac turer's specific instructions for the melting points of their products and any precautions for using their product with other materials.

The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

1.2. How to recognize that Pb Free solder is used

1.2.1. Base Unit PCB

1.2.1.1. Main

(Component View)

(Flow Solder Side View)

1.2.1.2. Operation

(Component View)

(Flow Solder Side View)

Note:
The location of the “PbF“ mark is subject to change without notice.

1.2.2. Cordless Handset PCB

(Component View)

(Flow Solder Side View)

Note:
The location of the “PbF“ mark is subject to change without notice.

1.2.3. Charger Unit PCB

Note:
The location of the “PbF“ mark is subject to change without notice.

2. FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover the plastic parts boxes with aluminum foil.

2. Ground the soldering irons.

3. Use a conductive mat on the worktable.

4. Do not touch IC or LSI pins with bare fingers.

3. CAUTION

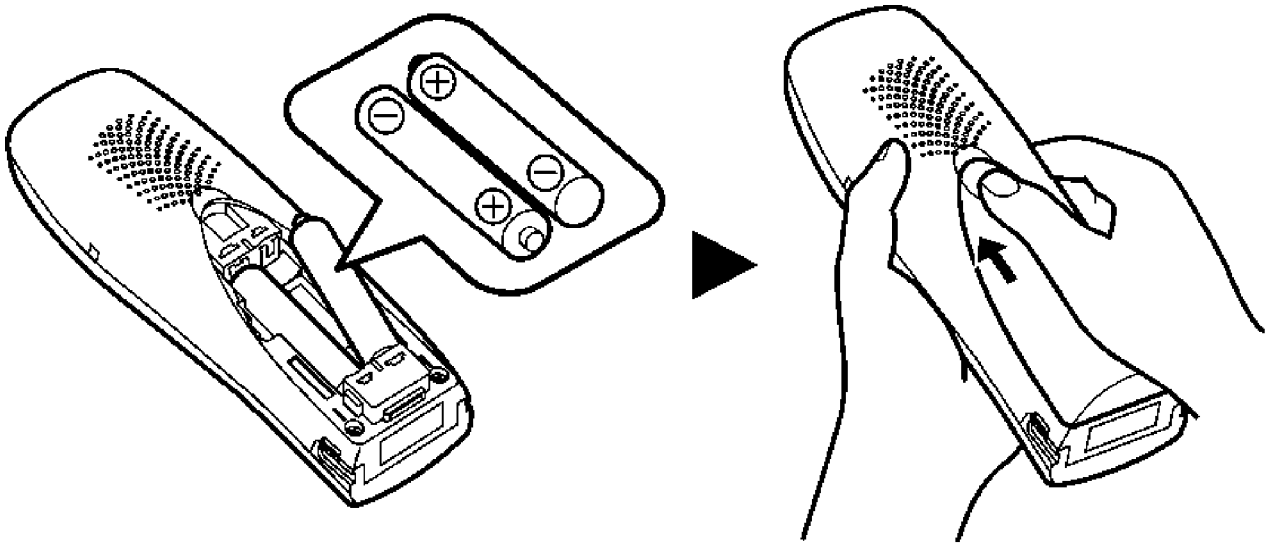
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommendenced by the manufacturer.
Dispose of used batteries according to the manufacture's Instructions.

4. BATTERY

4.1. Battery Installation

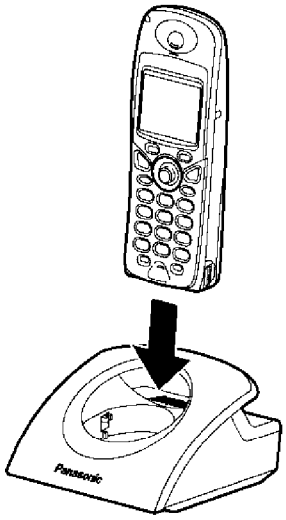
Please ensure the batteries are inserted as shown. ⊖ part should be inserted first. Close the cover as indicated by the arrow.

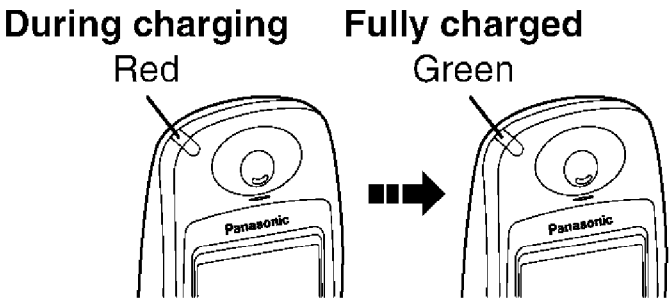
- **When you replace the batteries, ⊕ part should be removed first.**



4.2. Battery Charge

At the time of shipment, the batteries are not charged. To charge, place the cordless handset on the charger.
Please charge the batteries for about 7 hours before initial use. During charging, the charge LED will light as shown below.





Display icon	Battery strength
	High
	Medium
	Low
	Needs to be charged

The cordless handset, even when switched off, will be turned on automatically when it is placed on the charger.
The cordless handset will not operate while it is on the charger.

If the handset display flashes **when the cordless handset is lifted off the charger, please charge the cordless handset batteries at least 15 minutes.**

Note for Service:

- **The battery strength may not be indicated correctly if the battery is disconnected and connected again, even after it is fully charged.**
  In that case, by recharging the battery as mentioned above, you will get a correct indication of the battery strength.

- **Confirmation of Antenna Pict ( ) indication:**
  If Antenna Pict is indicated, charge time is about 7 hours.
  However, if Antenna Pict is flashing, charge time becomes long.

4.3. Battery Information

After your Panasonic battery is fully charged:

Ni-MH Batteries (typical 700 mAh)

Operation	Operating Time
While in use (TALK)	10 hrs approx.
While not in use (Standby)	180 hrs approx.

Ni-Cd Batteries (typical 250 mAh)

Operation	Operating Time
While in use (TALK)	4 hrs approx.
While not in use (Standby)	60 hrs approx.

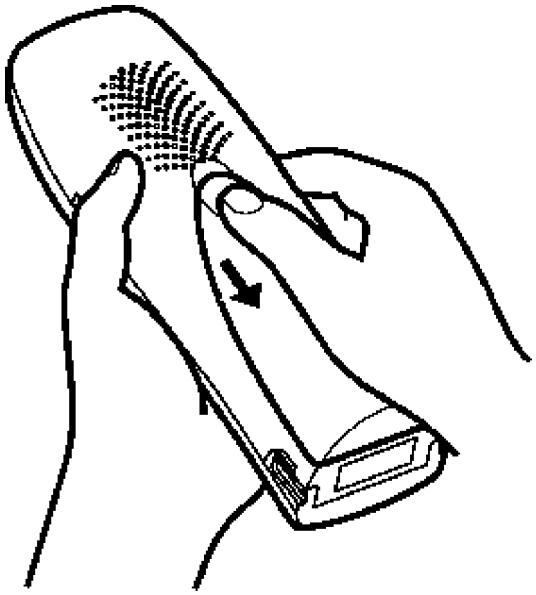
- **Times indicated are for peak performance.**
- **The battery operating time may be shortened depending on usage conditions and ambient temperature.**
- **Clean the charge contacts of the cordless handset and the charger with a soft, dry cloth. Clean if the unit is subject to grease, dust or high humidity. Otherwise the battery may not charge properly.**
- **The batteries cannot be overcharged unless they are repeatedly removed and replaced.**
- **For maximum battery life, it is recommended that the cordless handset not be recharged until the battery icon flashes .**

4.4. Replacing the Batteries

If the icon flashes after a few telephone calls even when the cordless handset batteries have been fully charged, both batteries must be replaced.

- **Charge new batteries for approximately 7 hours before initial use.**
- **When replacing the batteries, be sure to set up the battery type even if you install the same type of batteries to initialise battery remaining memory of your cordless handset.**

- **Do not use non-rechargeable batteries. If non-rechargeable batteries are installed and start charging, battery electrolyte may leak from the unit.**
- **Open the battery cover by pressing down firmly on the notch and sliding it as indicated by the arrow below.**



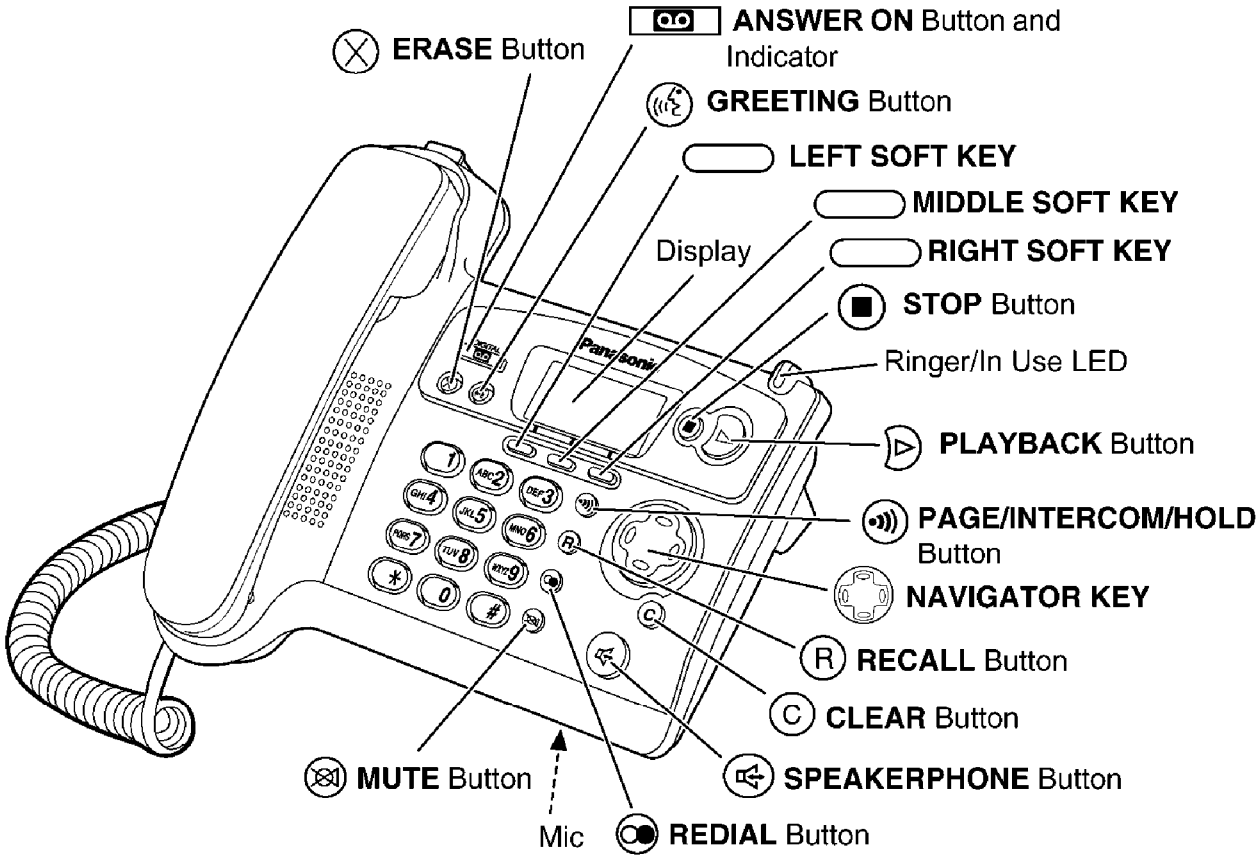
Replace both batteries and close the cover. Charge the cordless handset for about 7 hours.
Please order Panasonic HHR-4EPT (Ni-MH) or P-4NPT (Ni-Cd) batteries.
Note for Service:

- **When Ni-Cd batteies are littled with the** "BATTERY TYPE"

setting in "Ni-MH", icon might disappear and stop charging even if the handset is on the cradle for avoiding overcharge.

5. LOCATION OF CONTROLS

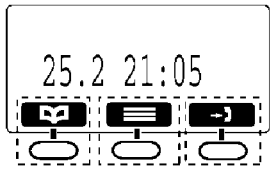
5.1. Base Unit



How to Use the Base Unit Soft Keys

The 3 soft keys are used to select functions displayed directly above the keys. Functions displayed above the keys will change depending on the state of use. For example, on the standby mode display, "[ ]", "[ ]" and "[ ]" are displayed above the soft keys.

Example: Standby Mode Display



To operate "[ ]" (**Phonebook**), press **LEFT SOFT KEY**.

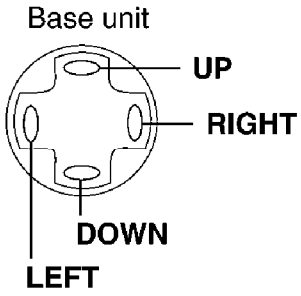
To operate "[ ]" (**Menu**), press **MIDDLE SOFT KEY**.

To operate "[ ]" (**Caller ID List**), press **RIGHT SOFT KEY**.

When "[ ]" is displayed above a soft key, the soft key has no function.

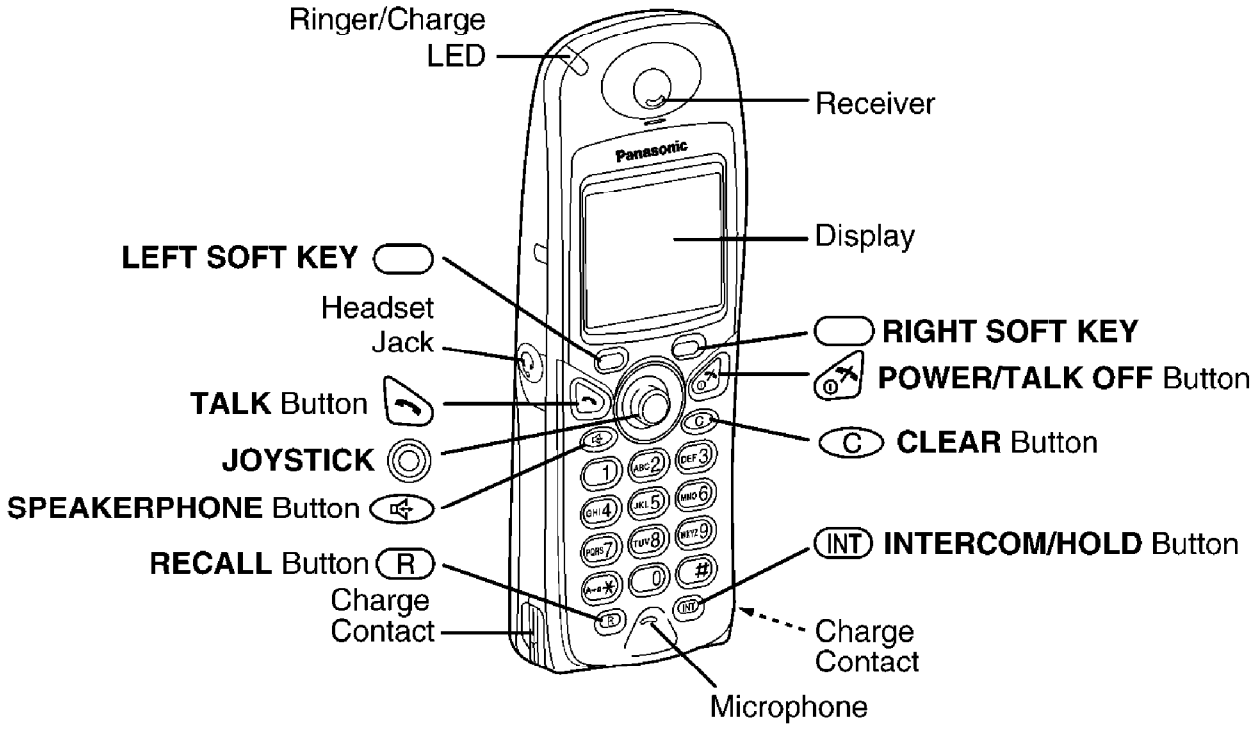
How to Use the Navigator Key

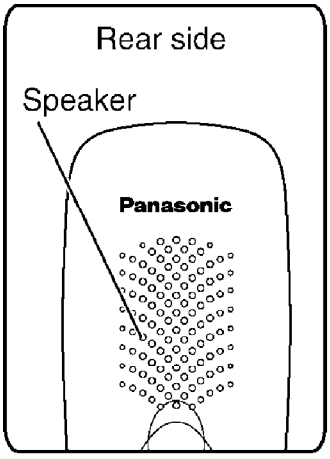
This key has four active areas.



UP	• Scrolls up through the function menu, Caller List and the Base Unit Phonebook. • Increases the volume.
DOWN	• Scrolls down through the function menu, Caller List and the Base Unit Phonebook. • Decreases the volume.
RIGHT	• Selects your menu choices.
LEFT	• Returns to the previous display.

5.2. Cordless Handset

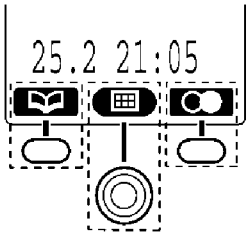




How to Use the Cordless Handset Soft Keys

The 3 soft keys are used to select functions displayed directly above the keys.
Functions displayed above the keys will change depending on the state of use.
For example, on the standby mode display, "[Phonebook]", "[Menu]" and "[Redial]" are displayed above the soft keys.

Example: Standby Mode Display



To operate "[Phonebook]" (**Phonebook**), press **LEFT SOFT KEY.**

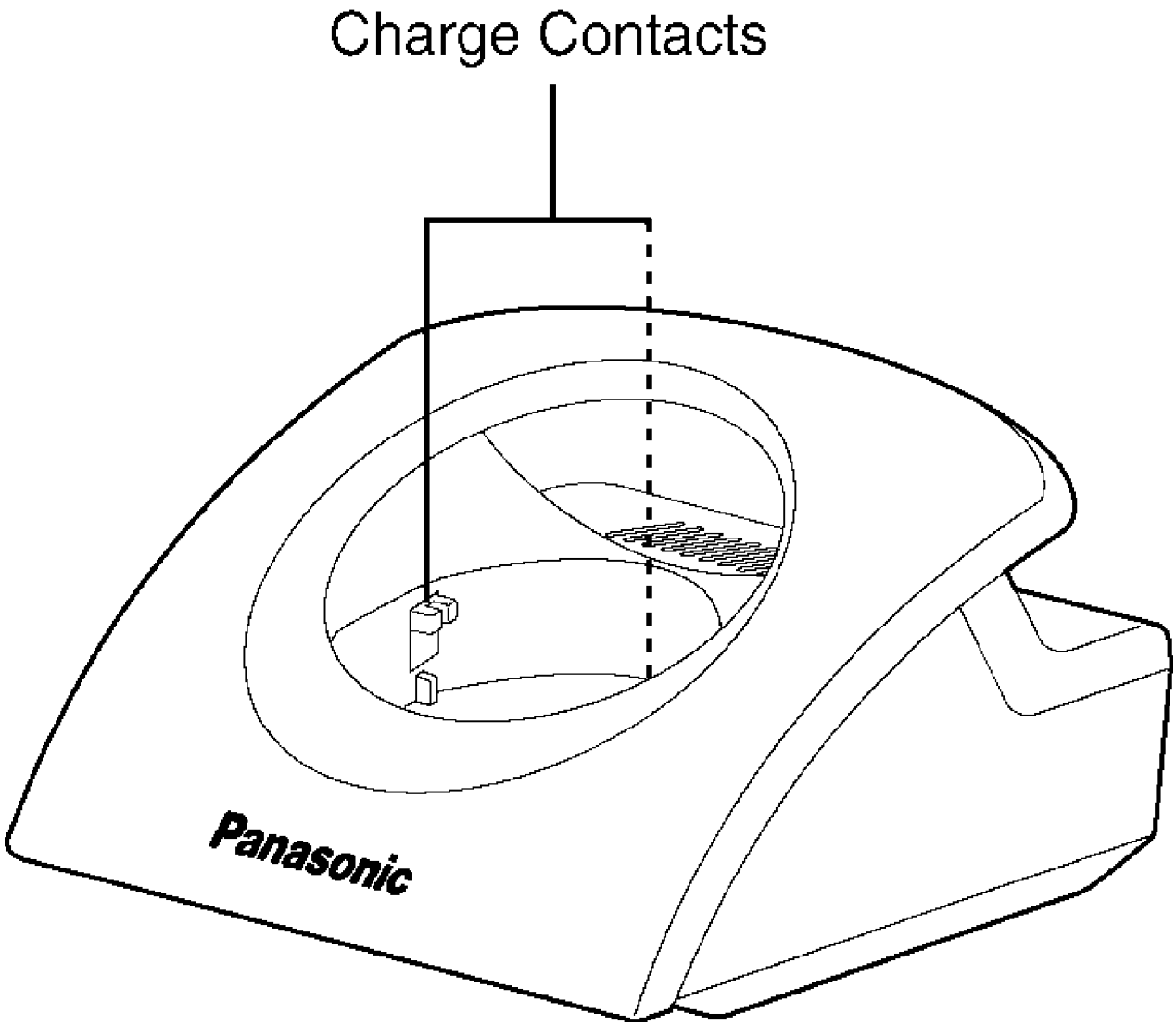
To operate "[Menu]" (**Menu**), press the centre of the **JOYSTICK**, used as the middle soft key.

To operate "[Redial]" (**Redial**), press **RIGHT SOFT KEY.**

When "[blank]" is displayed above a soft key, the soft key has no function.

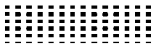
- "[Menu]" (**Menu**) can be selected when in the standby mode by moving **JOYSTICK** up, down, left or right.

5.3. Charger Unit



5.4. Icons above SOFT KEYS

5.4.1. Base Unit

Icons	Functions	Icons	Functions
	Go Back		Pause
	Menu		Intercom/Paging
	OK		Caller ID List
	Phonebook		Repeat Message
	No Function		Skip Message
	Delete		

5.4.2. Cordless Handset

Icons	Functions	Icons	Functions
	Go Back		No Function
	Menu		Alphabet
	Sub-Menu		Numeric
	OK		Greek
	Redial		Extended 1
	Phonebook		Extended 2
	New Phonebook		Russian
	Search		Select
	Key Lock		Pause
	12/24 Hour Clock		Mute
	Stop		Delete

6. SETTINGS

For your Information

Throughout these Service Manuals, Cordless Handset and Base Unit are used to indicate with which unit an operation can be performed.
Cordless Handset: Perform with cordless handset.
Base Unit: Perform with the base unit.
Cordless Handset/Base Unit: Perform with the cordless handset or base unit separately.
Cordless Handset and Base Unit: Perfrom with the cordless handset and base unit together.

Enviroment
Do not use this unit near water. This unit should be kept away from heat sources such as radiators, cookers, etc. It should also not be placed in rooms where the temperature is less than 5°C or greater than 40°C.
The AC adaptor is used as the main disconnect device. Ensure that the AC outlet is located/installed near the unit and is accessible.

Location

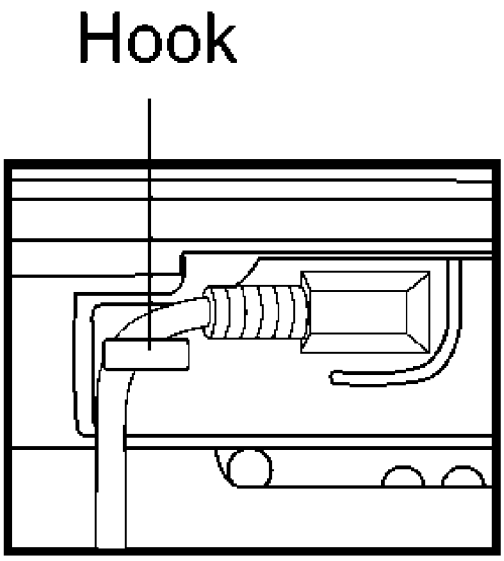
- **For maximum distance and noise-free operation, place your base unit:**
- **Away from electrical appliances such as TVs, radios, personal computers or other phones.**
- **In a convenient, high, and central location.**

6.1. Connection

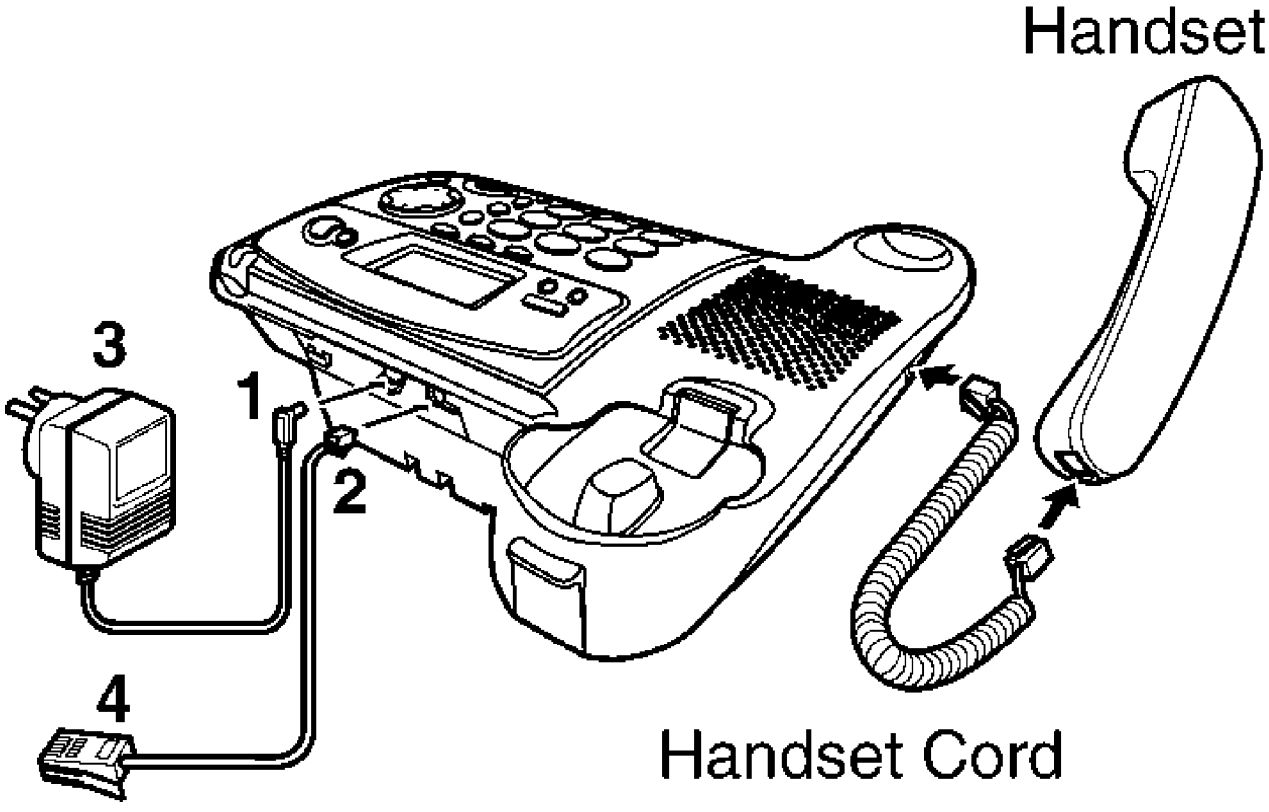
The unit will not work during a power failure. We recommend you connect a standard telephone on the same line for power protection.

6.1.1. Base Unit

Plug in the AC adaptor and the telephone line cord in order 1, 2, 3, 4.
The cords can be hidden from view when using the base unit on a desktop by tucking them under the wall mounting adaptor.



Fasten the AC adaptor cord to prevent it from being disconnected.

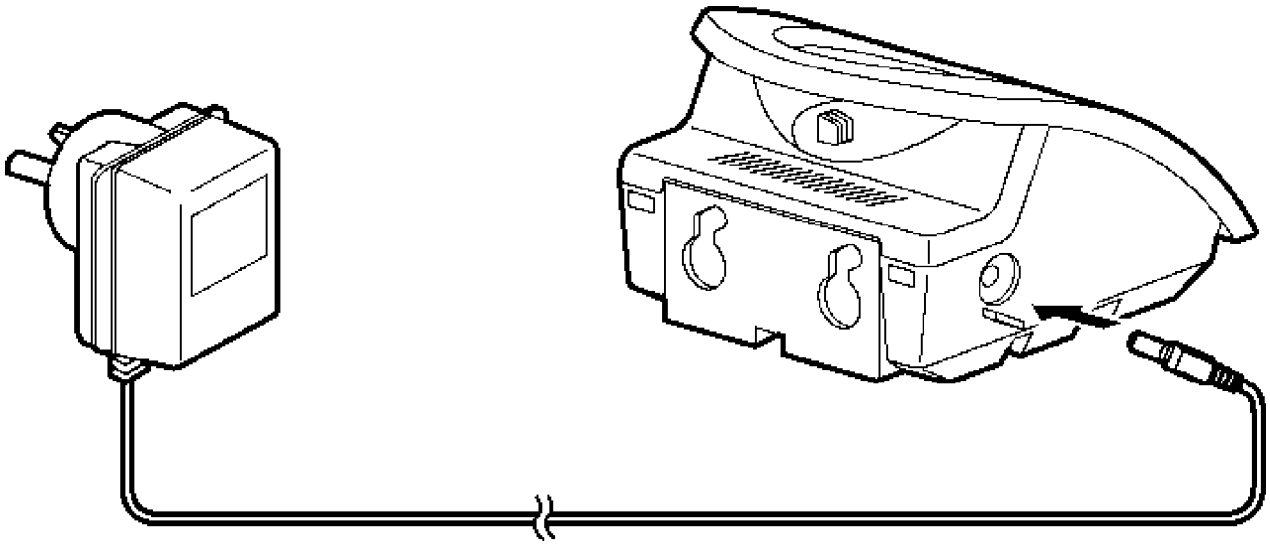


- **The AC adaptor must remain connected at all times (It is normal for the adaptor to feel warm during use).**

- **Never install telephone wiring during a lightning storm.**
- **USE ONLY WITH Panasonic AC ADAPTOR PQLV19ALZ.**

6.1.2. Charger Unit

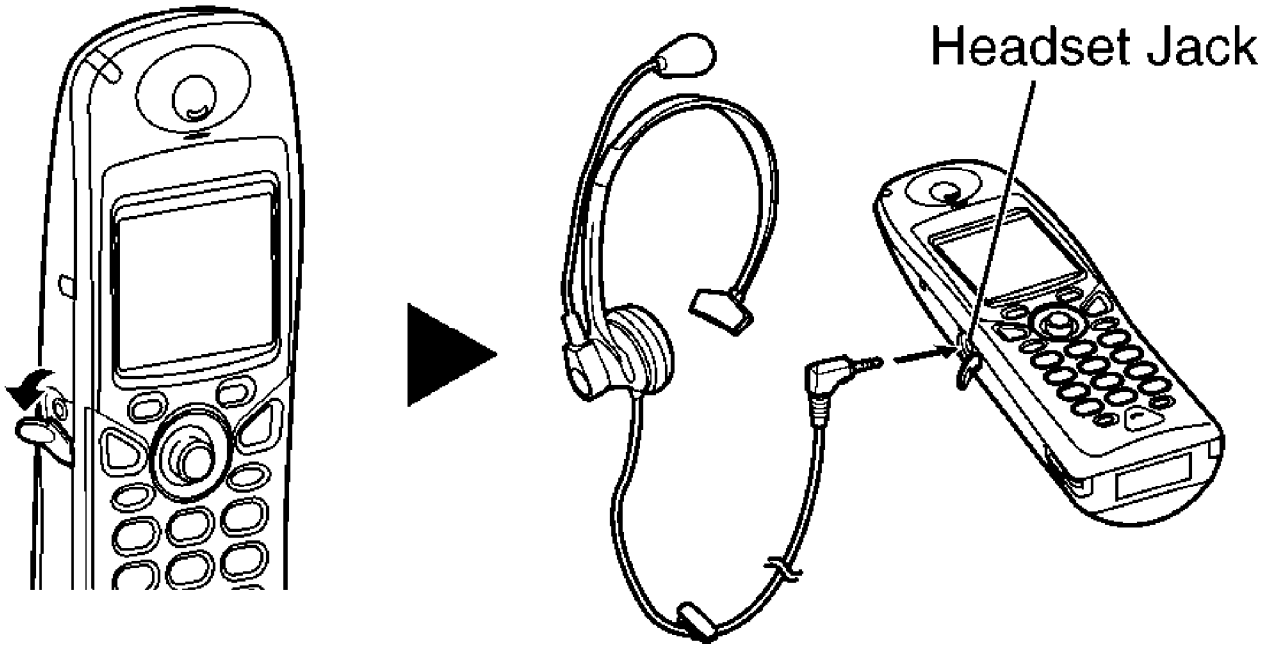
The batteries must be fully charged before initial use of the cordless handset.



- **The AC adaptor must remain connected at all times (It is normal for the adaptor to feel warm during use).**
- **USE ONLY WITH Panasonic AC ADAPTOR PQLV200ALZ.**

6.1.3. Optional Headset

Plugging an optional headset into the cordless handset allows hands-free phone conversations. While using the headset, speakerphone is not available. To switch to speakerphone, disconnect the headset.
Connecting the Optional Headset to the Cordless Handset
Open the headset jack cover, and connect the optional headset to the headset jack as shown.

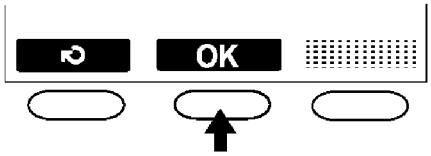
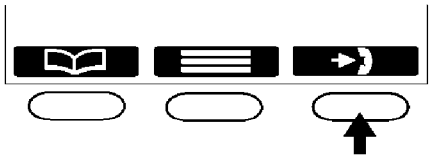
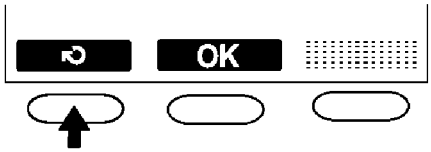


6.2. Symbols Used for Operations

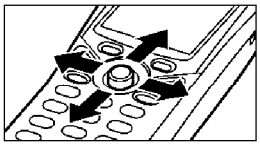
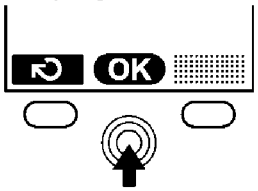
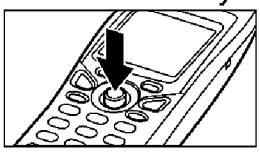
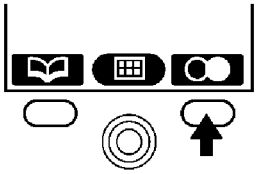
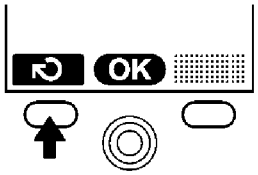
6.2.1. Base Unit/Cordless Handset

Symbol	Meaning
➧	Go to the next step.
“ ”	The words in “ ” indicate the text shown on the display.
	The phone is ringing.

6.2.2. Base Unit

Symbol	Meaning	
	Press **NAVIGATOR KEY** up or down. e.g., Search for the desired item.	
e.g., OK 	e.g., Display of menu items 	Press **MIDDLE SOFT KEY**. In this example, the desired item is selected.
e.g., Caller ID List 	e.g., Standby Mode Display 	Press **RIGHT SOFT KEY**. In this example, the newest caller information is displayed.
e.g., Go Back 	e.g., Display of menu items 	Press **LEFT SOFT KEY**. In this example, the display returns to the previous menu.

6.2.3. Cordless Handset

Symbol	Meaning	
	Move the **JOYSTICK** up, down, left or right. e.g., Search for the main menu. 	
e.g., OK	e.g., Display of menu items 	Press **JOYSTICK** directly in the centre. In this example, the desired item is selected.  Press Directly
e.g., Redial	e.g., Standby Mode Display 	Press **RIGHT SOFT KEY**. In this example, the telephone number last dialled is displayed.
e.g., Go Back	e.g., Display of menu items 	Press **LEFT SOFT KEY**. In this example, the display returns to the previous menu. C has the same function as go back.
	Press **POWER/TALK OFF** Button. **Press this button once or twice, depending on the state of use, to return to the display to standby mode.**	

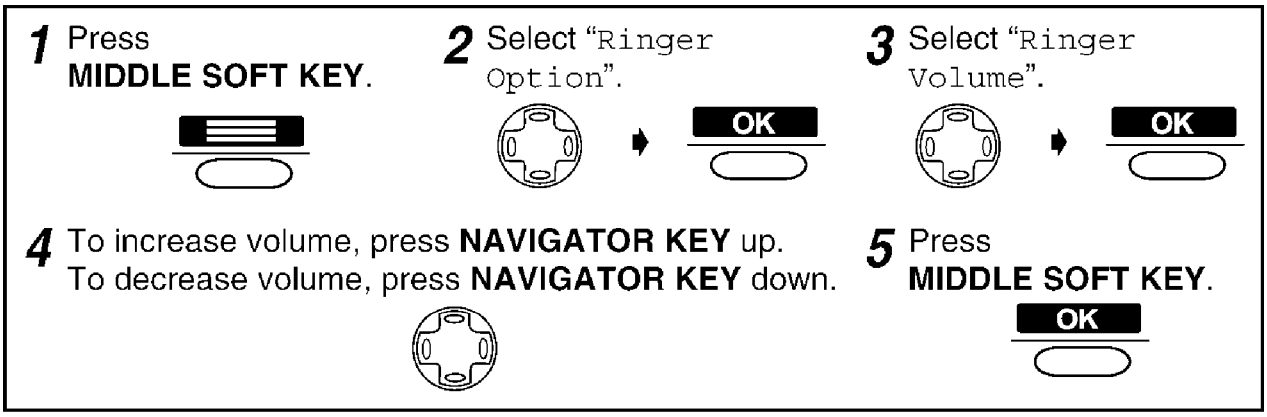
6.3. Setting the Ringer Volume

6.3.1. Base Unit

The choices for the base unit ringer volume are 3 levels and off.

If you set the volume to OFF, "🔕" is displayed.

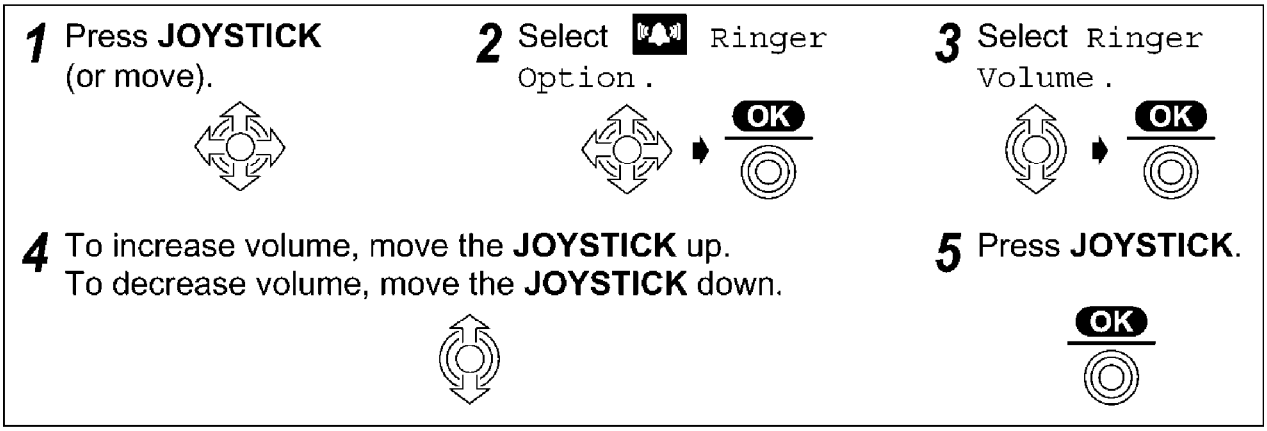
To exit the operation, press (C) at any time.


1 Press MIDDLE SOFT KEY.
2 Select "Ringer Option".
OK
3 Select "Ringer Volume".
OK
4 To increase volume, press NAVIGATOR KEY up.
To decrease volume, press NAVIGATOR KEY down.
5 Press MIDDLE SOFT KEY.
OK

- The factory preset is medium.

6.3.2. Cordless Handset

The choices are 6 levels and off. If you set the volume to OFF, "🔕" is displayed, however, the volume of a paging and intercom call is still at level 1.



- The factory preset is 6.

6.4. Settings Menu Chart

6.4.1. Base Unit

1st Menu	2nd Menu	3rd Menu
Setting Base	Call Option	Recall
		Pause Time
		Emergency Call
		Set ARS
		Call Restricted
	Cancel Handset	
	Other Option	Change Base PIN
		Reset Base

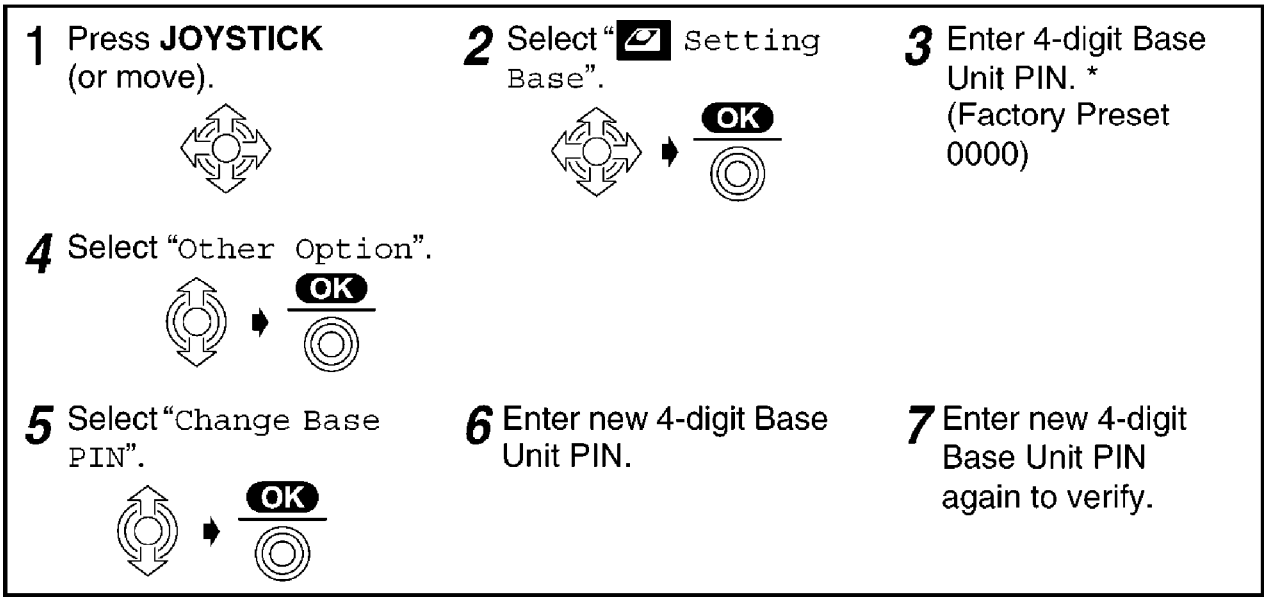
6.4.2. Cordless Handset

1st Menu	2nd Menu	3rd Menu
Setting Handset	Set Date/Time	
	Memo Alarm	
	Ringer Option	Ringer Volume
		EXT Ringer Type
		INT Ringer Type
		Paging Tone
		Private Ring
	Tone Option	Key Tone
	Display Option	Standby Display
		Talk Display
		Select Language
		Private Colour
		Category Name
	Call Option	Call Bar
		Direct Call No.
		Direct On/Off
	Registration	Register H/set
		Cancel Base
	Select Base	Auto
		Base 1 ⋮ Base 4
	Other Option	Change H/S PIN
		Change H/S Name
		Auto Talk
		Auto Voice Dial
		Battery Type
		Reset Handset

6.5. PIN Code

6.5.1. Base Unit

To exit the operation, press at any time.


1 Press JOYSTICK (or move).
2 Select "Setting Base".
OK
3 Enter 4-digit Base Unit PIN. * (Factory Preset 0000)
4 Select "Other Option".
OK
5 Select "Change Base PIN".
OK
6 Enter new 4-digit Base Unit PIN.
7 Enter new 4-digit Base Unit PIN again to verify.

For Service Hint:

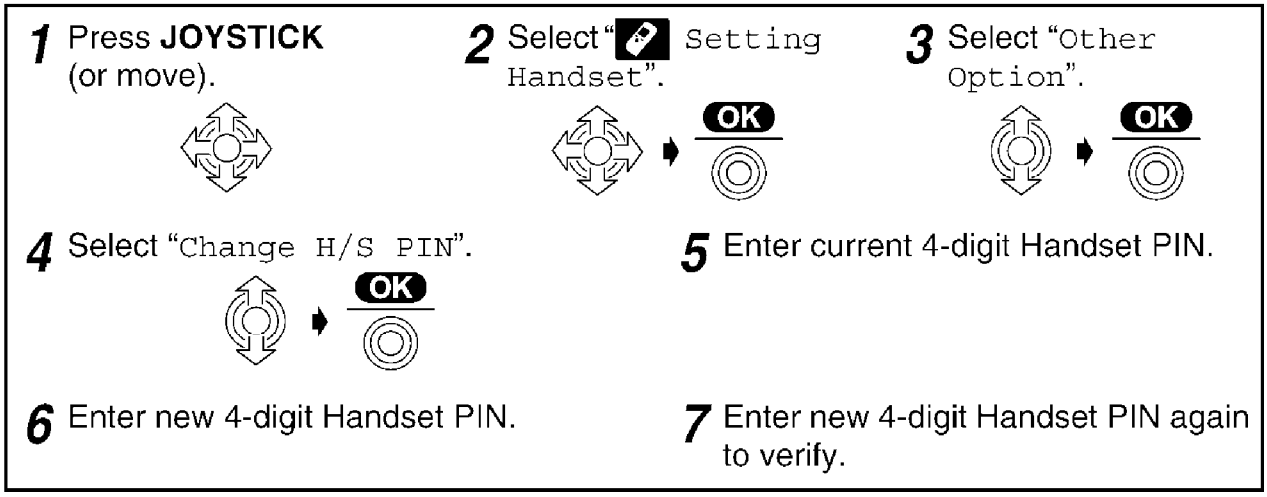
*** : If the current 4-digit Base Unit PIN is forgotten, follow the procedures below.**

1. If Base Unit and Handset are not linked with, first, follow the steps in Cordless Handset Registration to a Base Unit ( ).

2. Follow the steps above in Base Unit ( ) of PIN Code. At step 3, enter * 7 0 0 0, and you will able to enter new Base Unit PIN.

6.5.2. Handset

To exit the operation, press at any time.


1 Press JOYSTICK (or move).
2 Select "Setting Handset".
OK
3 Select "Other Option".
OK
4 Select "Change H/S PIN".
OK
5 Enter current 4-digit Handset PIN.
6 Enter new 4-digit Handset PIN.
7 Enter new 4-digit Handset PIN again to verify.

For Service Hint:

*** : If the current 4-digit PIN is forgotten, press**

and you will be able to enter new Handset PIN.

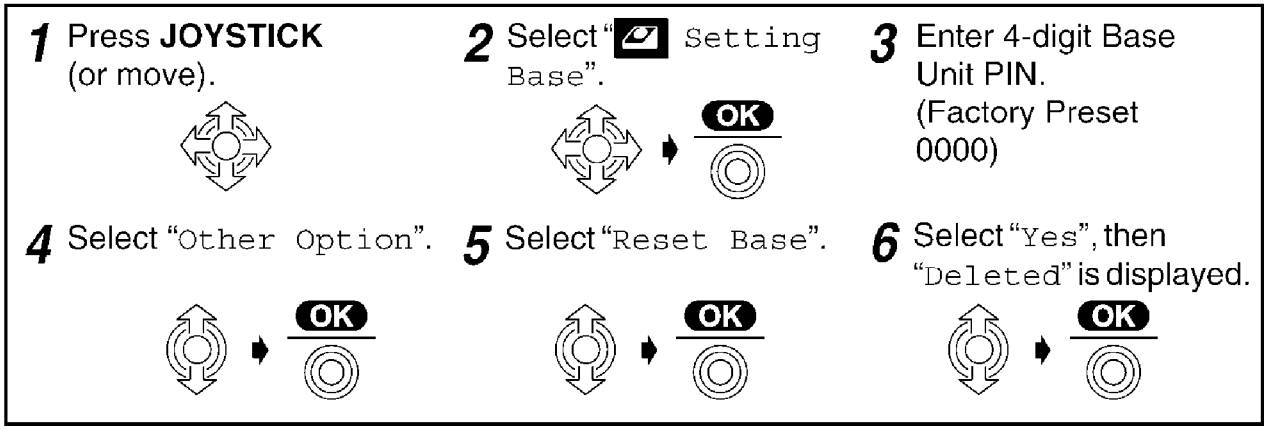
This password is useful whether Base Unit and Handset are linked with or not.

6.6. Reset the Settings

6.6.1. Base Unit

You can reset all of the base unit settings to their initial settings.

To exit the operation, press at any time.



Initial Settings for Base Unit

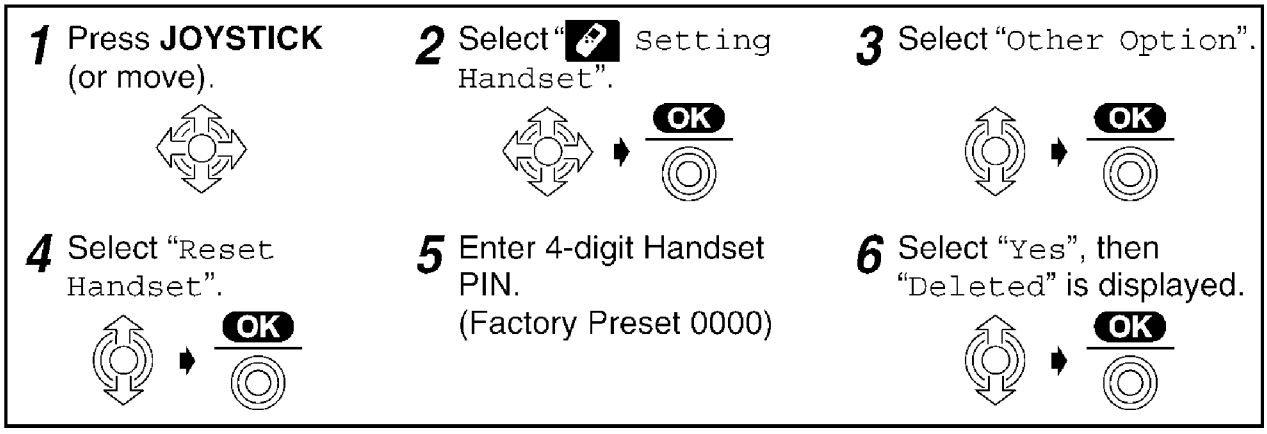
Function	Initial Setting	Remarks (selectable options
4-Digit Base Unit PIN	0000	-
Base Unit External Ringer Pattern	1	1 to 6
Base Unit Receiver Volume	Medium	High / Low / Medium / OFF
Call Bar Mode	OFF	ON / OFF
Display Language	English	-
Redial Memory	Delete All	-
Phonebook List	Remain	-
Caller ID List	Delete All	-
Area Code	Delete All	-
Date/Time	31-12-03/00:00	-
Answering System	ON	ON / OFF
Your Own Greeting Message	Remain	-
Caller's Recording Time	No Limit	Greeting Only / 1 min / No Limi
Number of Rings	4 Rings	2 ~ 9 Rings
Greeting Monitor	ON	ON / OFF
Remote Code	Delete (OFF)	000 ~ 999 / OFF ( )
Incoming/Memo Message(s)	Remain	-

- **All of the other base unit settings are cleared or turned to their factory preset when you reset the base unit settings.**

6.6.2. Cordless Handset

You can reset all of the handset settings to their initial settings.

To exit the operation, press ⏻ at any time.



Initial Settings for Cordless Handset

Functions	Initial Settings	Remarks (selectable options)
Display Language	English	-
4-Digit Handset PIN	0000	-
Phonebook List	Remain	-
Voice Tag	Remain	-
Select Base	Automatic Base Unit Selection	-
Redial Memory	Delete All	-
Walkie-Talkie Setting	Group	-
Private Colour	Green	Green / Red / Orange
Category Name	Remain	-
Handset Name	Remain	-
Date/Time	Remain	-

- **All of the other handset settings are cleared or turned to their factory preset when you reset the handset settings.**

6.7. Key Lock

You can lock the cordless handset dialling buttons. While locked, the buttons cannot be used and therefore calls cannot be made. Incoming calls can be answered while the key lock is ON. When the key lock is ON, the menu icon changes to .

When the key lock is ON, emergency calls cannot be made until key lock is cancelled.

<Key Lock ON>

(Standby Mode Display) ➧ Press and hold **JOYSTICK** directly for more than 2 seconds.

<Key Lock OFF>

Press and hold **JOYSTICK** directly for more than 2 seconds once again.

Note for Service:
The key lock is cancelled if the handset is turned off.

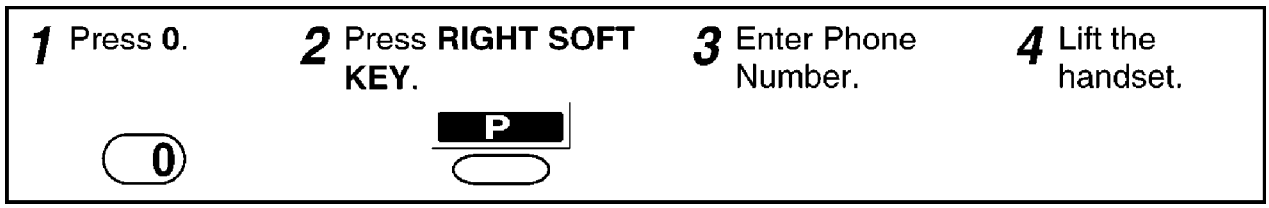
6.8. Recall Feature

RECALL (R) (on the cordless handset) or (R) (on the base unit) is used to access special telephone services. Contact your telephone company for details. If your unit is connected to a PBX, pressing (R) (on the cordless handset) or (R) (on the base unit) allows you to access certain features of your host PBX, such as transferring an extension call.

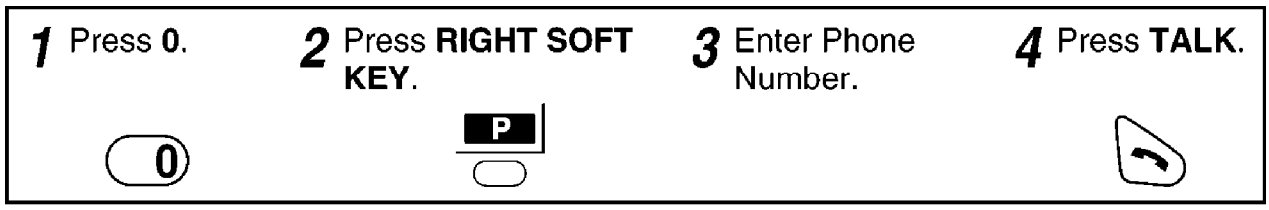
6.9. Dialling Pause for PBX line/long distance service users

A dialling pause can be entered when a pause in the dialling of a phone number is necessary when using a PBX or accessing a long distance service.
For example, if using the unit with a PBX and a line access number (0 , in this example) must be dialled before the telephone number:

6.9.1. Base Unit



6.9.2. Cordless Handset

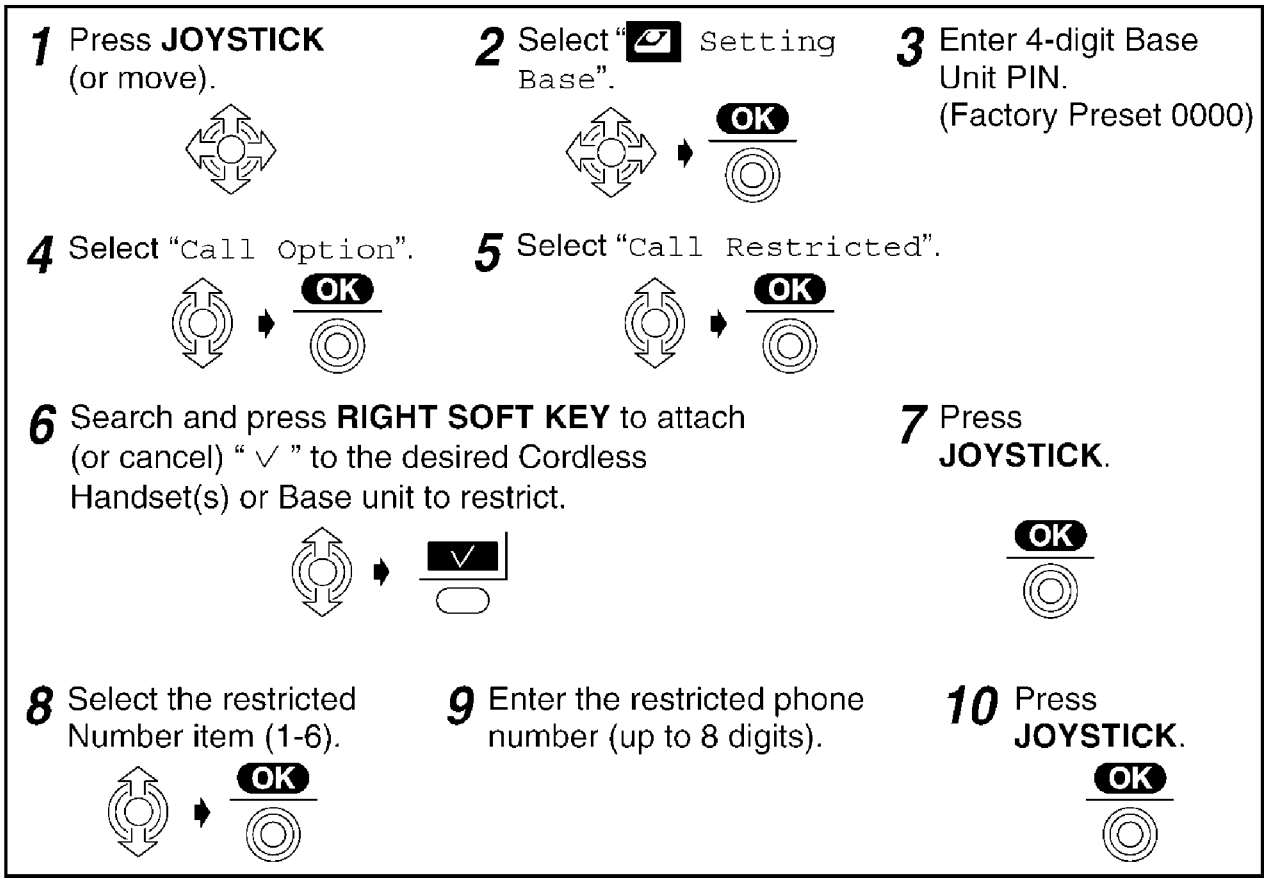


- You can also press (for cordless handset) or (for base unit) to make a call.
- Entering a pause can prevent misdialling when you redial or dial a stored number.
- Pressing **RIGHT SOFT KEY** more than once increases the length of the pause between numbers.

6.10. Call Restriction

You can restrict selected cordless handset(s) or the base unit from dialling selected phone numbers. You can assign up to 6 call restriction numbers (up to 8 digits). If you dial a restricted number, the call does not connect and the restricted number flashes.

To exit the operation, press at any time.


1 Press JOYSTICK (or move).
2 Select "Setting Base".
OK
3 Enter 4-digit Base Unit PIN. (Factory Preset 0000)
4 Select "Call Option".
OK
5 Select "Call Restricted".
OK
6 Search and press RIGHT SOFT KEY to attach (or cancel) " ✓ " to the desired Cordless Handset(s) or Base unit to restrict.
7 Press JOYSTICK.
OK
8 Select the restricted Number item (1-6).
OK
9 Enter the restricted phone number (up to 8 digits).
10 Press JOYSTICK.
OK

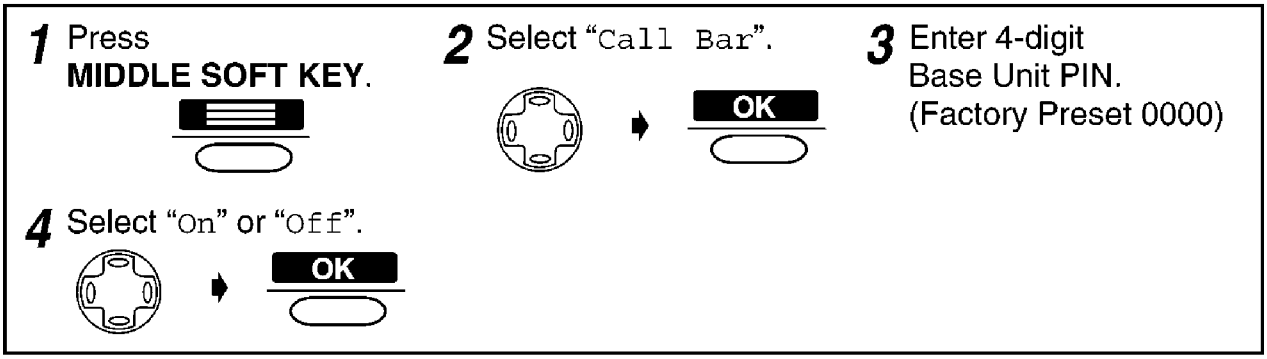
NOTE:
When you put a first digit on step 9, it must overwrite the current displayed numbers. We recommend you to write down the restricted phone number you entered.

6.11. Call BAR On/Off (Call Prohibition On/Off)

When this feature is set to ON, outgoing calls cannot be made. Intercom calls and calls to numbers assigned as emergency numbers can be made.

6.11.1. Base Unit

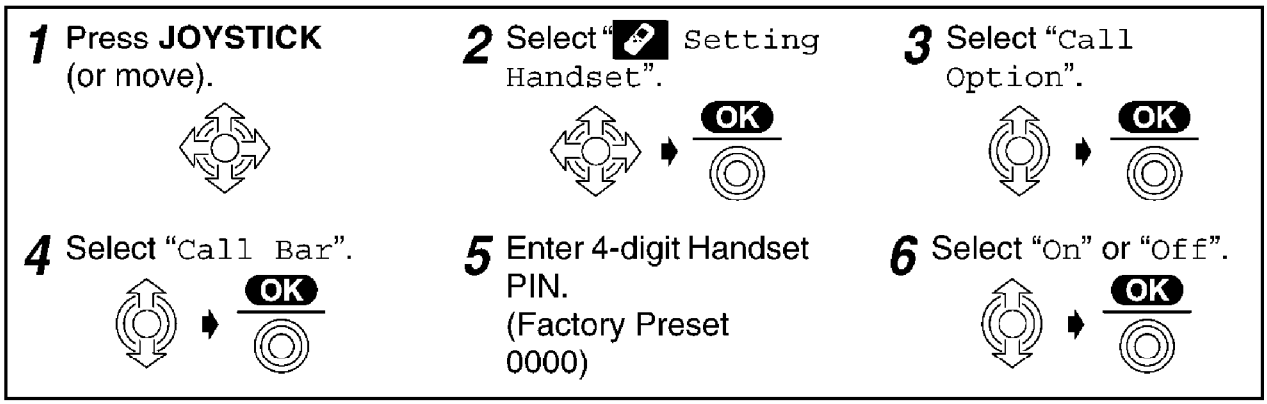
To exit the operation, press Ⓒ at any time.



- The factory preset is "Off".
- While the Call Bar mode is turned on, "" is displayed.

6.11.2. Cordless Handset

To exit the operation, press ⏻ at any time.



- The factory preset is "Off".
- While the Call Bar mode is turned on, "" is displayed.

6.12. Selecting the Display Language

You can select one of 19 languages on the cordless handset and the base unit separately. The factory preset is English.

6.12.1. Base Unit

To exit the operation, press Ⓒ at any time.

1 Press **MIDDLE SOFT KEY**.

2 Select "Select Language".

3 Select the desired language.

- If you set a language you cannot read, reset the display language to your desired language.

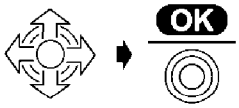
  Press ▬ ➧ Press ◉ (DOWN) 3 times ➧ Press OK ➧ Select desired language ➧ Press OK.

6.12.2. Cordless Handset

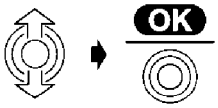
To exit the operation, press ⏻ at any time.

1 Press **JOYSTICK** (or move).

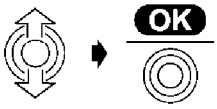
2 Select "Setting Handset".



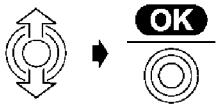
3 Select "Display Option".



4 Select "Select Language".



5 Select the desired language.



- If you set a language you cannot read, reset the display language to your desired language.

  Press ⏻ ➧ Press ▬ ➧ Move ◉ ➧ Press OK ➧ Move ◉ four times ➧ Press OK ➧ Move ◉ twice ➧ Press OK ➧ Select desired language ➧ Press OK.

Note for Service:

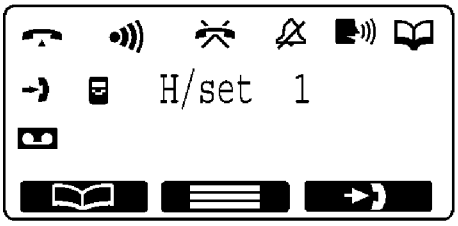
(for optional handset)

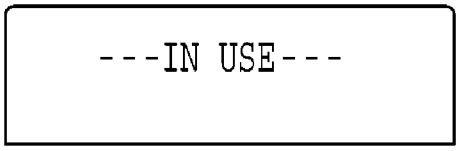
- Press ➧ Press ➧ Move ➧ Press ➧ Move four times ➧ Press ➧ Move twice ➧ Press ➧ Select desired language by moving ➧ Press .

7. DISPLAY

7.1. Display Icons

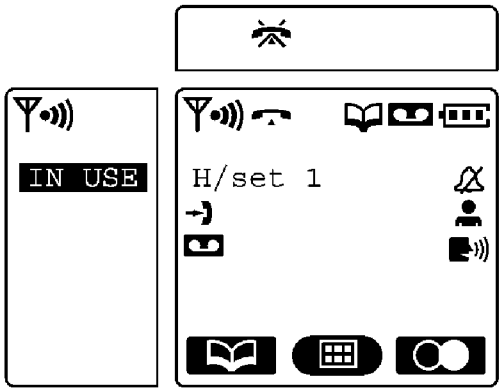
7.1.1. Base Unit





	Intercom/Paging
	Making or Answering calls
	Call Bar ON
	Phonebook Mode
	Ringer Volume OFF
	New call (Caller ID only)
---IN USE---	The line is being used by another unit.
H/set 1	Intercom Mode Cordless Handset Name (e.g., Cordless Handset 1)
	Message indication
	Call Minder indication

7.1.2. Cordless Handset



Phonebook Mode

Answering System ON
Message indication

Battery strength

Direct Call ON

Ringer Volume OFF

Within range of a base unit

Out of range/No registration/
No power on base unit

Intercom/Paging/
While connecting with base unit

Making or answering calls

Call Bar ON

New call (Caller ID only)

H/set 1 Cordless Handset Name (e.g., Cordless Handset 1)

Call Minder indication

IN USE The line is being used by another unit.

Voice Tag indication

Main Menu Display

To go to the **Main Menu**, press **JOYSTICK** directly in the centre (or move) while in the standby mode display. The selected menu icon is turned over, and its title is displayed.

Example: "Caller ID" is selected.

"Caller ID"

"TAM Operation"

"Ringer Option"

"Setting Handset"

"Setting Base"

"Walkie-Talkie"

For Service Hint:

icon will be displayed if the unit took a signal from Telephone Company as a Voice Message signal.

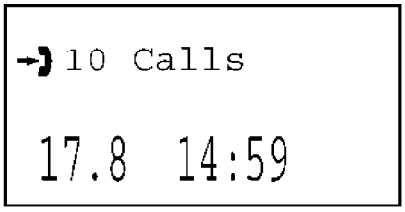
In that case, press the left button of the Navigator key for a few seconds.

7.2. Caller ID Service

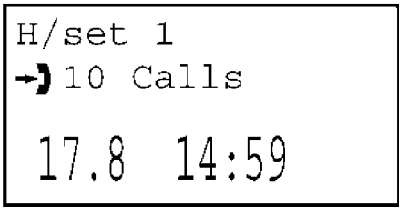
Caller ID is a service of your telephone company and will only operate if you have subscribed to this service.
After subscribing to Caller ID, this phone will display the caller information.
If your unit is connected to a PBX or a telephone line that does not support this service, you will not be able to use it.
Caller ID does not display caller information while using the handset for an intercom call. However, the caller information will be stored to the Caller ID List.
For all local and national incoming calls, your display will show the area code (e.g. 09 for Auckland) or the cellular prefix (e.g. 0274 for Telecom Cellular) followed by the caller's telephone number. An Auckland caller's number will be displayed as 09XXXXXXX. The seven X's represent the seven digits of the caller's telephone number. A call from a six digit Telecom Cellular number will be displayed as 0274XXXXXX. For incoming international calls, your display may only show the digits "0000". For business users on a Centrex line, your display will show the Centrex extension numbers in the shorter extension number format used within your company.

Standby Mode Display

Base Unit



Cordless Handset



7.3. Before Requesting Help (Troubleshooting)

If you experience any problems with the normal use of your apparatus, you should unplug it from the telephone outlet and connect a known working telephone in its place. If the known working telephone still has problems, then please contact the customer service department of your telephone company. If it operates correctly, then the problem is likely to be a fault in your apparatus. In this case, contact your supplier for advice. Your telephone company may charge you if they attend a service call that is not due to an apparatus supplied by them.

Turn the power OFF then ON (Handset)/Disconnect then connect the AC adaptor (Base Unit).

Problem	Possible cause	Solution
The unit does not work.	• Batteries not installed properly. • AC adaptor of base unit not connected properly.	• Re-install batteries properly. • Disconnect and then connect AC adaptor.
Display is blank.	• Cordless handset not turned on.	• Turn on power. (Refer to **Power ON/OFF**.)
Cordless handset will not turn on.	• Batteries not inserted. • Batteries not charged.	• Insert the 2 rechargeable batteries supplied. • Place cordless handset on charger and connect AC adaptor to charger and AC outlet (full charge period 7 hrs).
Battery charge icon not counting up.	• Dirty charge contact. • Charger not powered up.	• Clean charge/battery contact and retry charge. • Connect AC adaptor to charger and AC outlet.
Y icon flashes.	• Cordless handset not registered to base unit. • Cordless handset out of range of base unit. • No power into base unit.	• Register cordless handset to base unit.*1 • Move cordless handset closer to base unit. • Connect AC adaptor to base unit and AC outlet.
Cordless handset busy tone heard when is pressed.	• Cordless handset out of range of base unit. • Another unit in use.	• Move cordless handset closer to base. • Wait for the other user to complete call.
No dial tone.	• Telephone line not connected.	• Insert telephone line cord to network. • Turn power OFF then ON. (Refer to **Power ON/OFF**.)
Cannot dial out.	• Call Bar mode set. • Particular dialled number is restricted. • Key lock mode ON.	• Turn feature off. (Refer to **Call BAR ON/OFF**.) • Remove number from call restricted list. (Refer to **Call Restriction**.) • Turn key lock OFF. (Refer to **Key Lock**.)
Cordless handset will not ring.	• Ringer switched off.	• Set ringer to one of 6 volume levels.
Last number redial does not work.	• Number exceeded 24 digits.	• Redial manually.
Audible Caller sounds late.	• Recording time is long.	• Shorten recording time
No Caller ID number displayed.	• Service not supplied. • Caller has withheld info.	• Caller ID service must be arranged with telephone company.
icon flashes.	• Battery low.	• Recharge batteries.
Cannot register cordless handset to base unit.	• Max. number of base units already registered to cordless handset. • Max. number of cordless handsets already registered to base unit. • Wrong PIN number entered (Default 0000). • Electrical noise in local area.	• Delete unused base unit registrations from cordless handset. • Delete unused cordless handset registrations from base unit. • If PIN number is lost, contact the Panasonic Service Centre. (Refer to **PIN Code**.) • Move base/cordless handset away from sources of electrical noise (e.g., TVs, radios, etc.).
The display is blank even if the unit is charged.	• Battery low.	• Recharge batteries more than about 15 minutes.
Date and time disappeared.	• Power failure.	• Set the date and time.
Clock is slow (fast).	• Power failure.	• Readjust date/time from cordless

Clock is slow (fast).	• Power failure.	• Readjust date/time from cordless handset 1.
A beep sounds when or on the base unit is pressed.	• Another unit in use.	• Wait for the other user to complete the operation.
A beep sounds when entering caller list or base unit phonebook with cordless handset.	• Another unit in use.	• Wait for the other user to complete the operation.
The unit picks up the wrong voice tag.	• Similar voice tag exists.	• Record different voice tag.

Answering System

Problem	Possible cause	Solution
The answering system is on, but incoming messages are not recorded.	• The recording time is set to "Greeting Only". • Memory is full (30 minutes or 64 messages).	• Select "1 Minute" or "No Limit". (Refer to **ANSWERING SYSTEM**.) • Erase some or all of the messages.
Cannot operate the answering system from a touch tone phone.	• Incorrect remote code entered. • Tone are too short to activate the unit. • The answering system is off.	• Enter the correct remote code. • Press each button firmly. • Turn on the answering system.
Cannot operate the answering system with the unit.	• Someone is operating the answering system.	• Retry when other user has finished operation.
While recording a greeting message, the unit starts to ring and stops recording.	• A call is being received.	• Answer the call. Retry recording after conversation is finished.
During playback, the unit starts to ring and stops playback.	• A call is being received.	• Answer the call, Retry playback after conversation is finished.

Cross Reference:

Power ON/OFF (
)
Call BAR On/Off (Call Prohibition On/Off) (
)
Call Restriction (
)
Key Lock (
)
PIN Code (
)
ANSWERING SYSTEM (
)

Note:

***1: It will take time for both Base Unit and Handset to be linked with.**

8. OPERATIONS

8.1. Power ON/OFF

Power ON

Press and hold **POWER**.

➧ When **POWER** is released, the display changes to the standby mode.

Power OFF

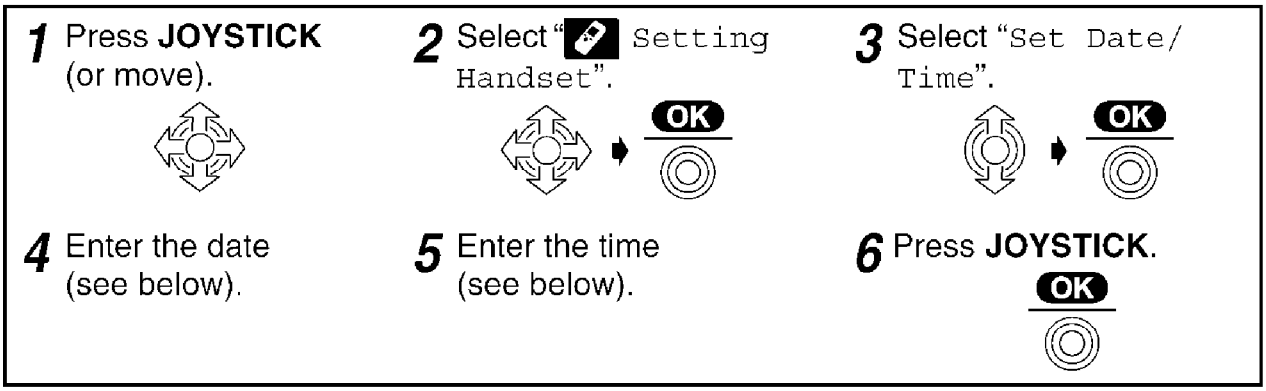
Press and hold **POWER**.

➧ The display goes blank.

8.2. Setting the Date and Time

After a mains power failure, the clock needs to be set. Ensure that the icon is not flashing. After the date and time are set, the base unit display also shows the date and time. This feature can be operated with the cordless handset only.

To exit the operation, press at any time.



Example: To set 16 February, 2003, 7:15 pm.

Date			Time		
Day	Month	Year	Hour	Minute	12/24 hour clock
1 6	0 2	0 3	0 7	1 5	12/24 12/24

To select 12/24 Hour Clock

Press **RIGHT SOFT KEY** repeatedly.

24 hour clock → 12 hour clock (AM) → 12 hour clock (PM) → 24 hour clock

8.3. Redialling

The last 10 numbers dialled on the cordless handset and the base unit are automatically stored in the redial list separately.

8.3.1. Dialling with the Redial List

8.3.1.1. Base Unit

1 Press **REDIAL**.

2 Search for the desired dialled item.

3 Lift the handset.

- If there are no items stored in the redial list when is pressed, the base unit display shows "`Memory Empty`".
- When scrolling reaches the end of the list, an end tone will sound.
- You can also press to make a call.

8.3.1.2. Cordless Handset

1 Press **RIGHT SOFT KEY**.

2 Search for the desired dialled item.

3 Press **TALK**.

- If there are no items stored in the redial list when is pressed, the handset display shows "`Memory Empty`".
- When scrolling reaches the end of the list, an end tone will sound.
- You can also press to make a call.

8.3.2. Dialling the Last Number Dialled

8.3.2.1. Base Unit

1 Lift the handset.

2 Press **REDIAL**.

Auto Redial

If you press then to redial a number and the dialled number is engaged, the unit will automatically redial the number every 40 seconds, up to 10 times. When using Auto Redial, press after pressing if the muting has not been cancelled.

8.3.2.2. Cordless Handset

1 Press **TALK**.	2 Press **RIGHT SOFT KEY**.

Auto Redial

If you press then to redial a number and the dialled number is engaged, the unit will automatically redial the number every 40 seconds, up to 10 times. When using Auto Redial, press after pressing if the muting has not been cancelled.

8.4. Phonebook

You can store up to 200 caller information in the handset phonebook and up to 20 caller information in the base unit phonebook. If you subscribed to Caller ID and you received a call from the same phone number you stored with name in each phonebook, the display will show the caller's name.
When same phone number has been registered to the handset and the base unit phonebook with different names, each display will show the each registered caller's name.

Private Category Feature

You can categorise caller information in the handset phonebook. There are 9 categories available. For example, category 1 can be used to save all friends numbers. For each category, you can rewrite the category names (max. 10 characters), you can select one of 3 Ringer LED colours and one of 15 ringer types. This feature is available only after subscription to Caller ID Service. Please contact your telephone company for further information.

Example

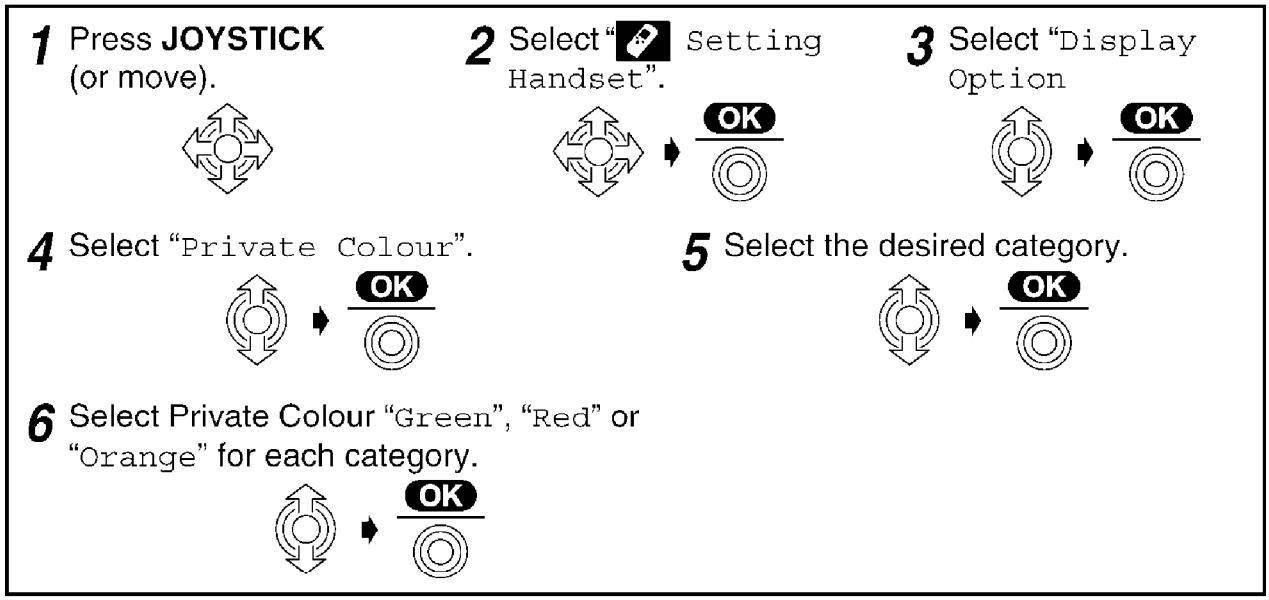
Private Category No.	Ringer LED Colour*			Private Ringer Type	Category Name
	Green	Orange	Red		
1		✓		3	Friends
3			✓	2	Customers

* The factory preset LED colour is green.

- The unit will indicate an incoming call using the factory preset LED colour (green) and the ringer pattern assigned to external calls momentarily until Caller ID information is received from the network provider.

Setting the Private Colour

To exit the operation, press at any time.



- The factory preset is "Green".
- When you select the private colour on step **6**, the Ringer LED will flash at the selected colour.

8.4.1. Storing Caller Information in the Phonebook

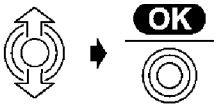
8.4.1.1. Base Unit Phonebook

This feature can be operated with the cordless handset only.
To use an Audible Caller ID feature, you must store caller information into the base unit phonebook.
To exit the operation, press at any time.

1 Press **LEFT SOFT KEY**.

2 Press **JOYSTICK**.

3 Select "Base Phonebook", then the display shows the number of empty phonebook entries.



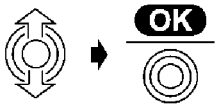
4 Enter Name. (max. 16 characters:)

5 Press **JOYSTICK**.

6 Enter Phone Number. (max. 24 digits)

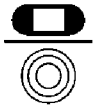
7 Press **JOYSTICK**.

8 Select "Start Recording".



9 Record the name within 1 minute.

10 Press **JOYSTICK**.

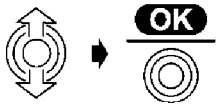
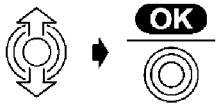


11 Select "Save", then "Saved" is displayed.

- If "Memory Full" is displayed in step **3**, the phonebook is full. To store, delete other stored items in the phonebook.
- If "Memory Full" is displayed in step **8**, the remaining recording time is **0**. To store, delete unnecessary incoming/memo messages.
- To continue storing other caller information, repeat from step **4**.
- If you do not use Audible Caller ID feature, select "Skip Recording" at step **8** and go to step **11**.
- If you need to go back to entering name during entering phone number, move the **JOYSTICK** up.

8.4.1.2. Cordless Handset Phonebook

To exit the operation, press at any time.

1 Press **LEFT SOFT KEY**.	**2** Press **JOYSTICK**.	**3** Select "`H/set Phonebook`", then the display shows the number of empty phonebook entries. 
4 Enter Name. (max. 16 characters)	**5** Press **JOYSTICK**.	**6** Enter Phone Number. (max. 24 digits)
7 Press **JOYSTICK**.	**8** Select the desired category or "`Off`". 	**9** Select "`Save`", then "`Saved`" is displayed.

- If "`Memory Full`" is displayed in step **3**, the phonebook is full. To store, delete other stored items in the phonebook.
- To continue storing other caller information, repeat from step **4**.
- If you need to go back to entering name during entering phone number, move the **JOYSTICK** up.

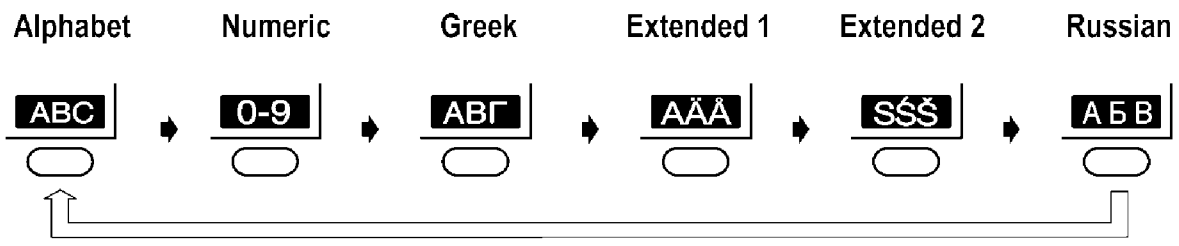
8.4.2. Entering Names/Characters

Keys	Operations
	Move the **JOYSTICK** up, down, left or right to move the cursor (a flashing digit).
0 to WXYZ9	Press to enter letters/numbers. (Items are added to the left of the cursor. If the cursor is at the beginning of a line, the item is added at the beginning.)
C	Press to delete characters. (Character on the cursor is deleted. To delete all characters, press and hold.)
A→a*	Press to change between upper and lower case.
0	Press to insert a blank space (except when in Numeric input mode).
1	Press to insert a symbol (*, #, /, etc.) (except when in Numeric input mode).

Selecting the Input Mode

You can select one of 6 input modes by pressing **RIGHT SOFT KEY** while entering a name. The function icon above the key displays the current input mode. The factory preset is "**Alphabet Mode**".
For the full character map, see **Phonebook Character Table**.

To switch the input mode while editing the name in the phonebook, press **RIGHT SOFT KEY.**



Example (Alphabet Mode)

Enter the name using the letters on the keypad. For example, to enter "Anne" in Alphabet Mode:

Cross Reference:

Phonebook Character Table (
)

8.4.3. Phonebook Character Table

Buttons	Alphabet (ABC)	Numeric (0–9)	Greek(АВГ)	Extended 1(AÄÅ)	Extended 2 (SŚŠ)	Russian (АБВ)
1	Space # & ' ( ) ∗, – . / 1	1	Space # & ' ( ) ∗, – . / 1			
2	A B C 2	2	Α Β Γ 2	A À Á Â Ã Ä Å Æ B C Ç 2	A Á Ä Ą B C Ć Č 2	А Б В Г 2
	a b c 2			a à á â ã ä å æ b c ç 2	a á ä Ą b c Ć Č 2	
3	D E F 3	3	Δ Ε Ζ 3	D E È É Ê Ë Ē F 3	D Ď E É Ę Ě F 3	Д Е Ж З 3
	d e f 3			d e è é ê ë ē f 3	d ď e é Ę ě f 3	
4	G H I 4	4	Η Θ Ι 4	G Ğ H I Ì Í Î Ï Ī İ 4	G H I Í 4	И Й К Л 4
	g h i 4			g ğ h i ì í î ï ī ı 4	g h i í 4	
5	J K L 5	5	Κ Λ Μ 5	J K L 5	J K L Ł Ĺ Ľ 5	М Н О П 5
	j k l 5			j k l 5	j k l Ł Ĺ Ľ 5	
6	M N O 6	6	Ν Ξ Ο 6	M N Ñ O Ò Ó Ô Õ Ö ø 6	M N Ń Ň O Ó Ö Ő 6	Р С Т У 6
	m n o 6			m n ñ o ò ó ô õ ö ø 6	m n Ń ň o ó ö ő 6	
7	P Q R S 7	7	Π Ρ Σ 7	P Q R S Ş ß 7	P Q R Ŕ Ř S Ś Š 7	Ф Х Ц Ч 7
	p q r s 7			p q r s Ş ß 7	p q r Ŕ ř s Ś Š 7	
8	T U V 8	8	Τ Υ Φ 8	T U Ù Ú Û Ü Ũ V 8	T Ť U Ú Ü Ű ů V 8	Ш Щ Ъ Ы 8
	t u v 8			t u ù ú û ü ũ v 8	t ť u ú ü ű ů v 8	
9	W X Y Z 9	9	Χ Ψ Ω Ϫ 9	W Ŵ X Y ŷ Z 9	W X Y Ỳ Ý Z Ź Ż Ž 9	Ь Э Ю Я 9
	w x y z 9			w Ŵ x y ŷ z 9	w x y ỳ ý z Ź Ż Ž 9	
0	Space 0	0	Space 0			

- The following small (or capital) letters of Greek, Russian (Cyrillic), Polish, Czech and Slovakian are not available. Then same letter as capital (or small) will be displayed. ą ć č ę ł l ľ ń Ø ŕ ş ś š ť Ù ŵ Y Ỳ Ż ż ž
- Press * to change letter size; Capital > Small, Small > Capital.

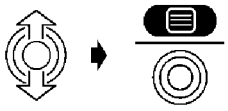
8.4.4. Editing Caller Information

This feature can be operated with the cordless handset only.
To exit the operation, press at any time.

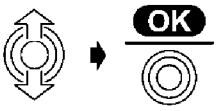
(For Base Unit Phonebook)

1 Press **LEFT SOFT KEY** twice.

2 Select the desired item.



3 Select "Edit".



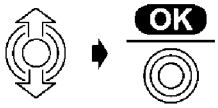
4 Edit Name.
(max. 16 characters)

5 Press **JOYSTICK**.

6 Edit Phone Number.
(max. 24 digits)

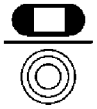
7 Press **JOYSTICK**.

8 Select "Start Recording". If you do not change the recorded name, select "Skip Recording", then go to step **11**. If you delete the recorded name, select "Delete" , then go to step **11**.



9 Record the name within 1 minute.

10 Press **JOYSTICK**.



11 Select "Save". then "Saved" is displayed.

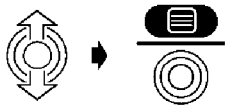
- To continue editing other caller information, repeat from step **2**.
- If you confirm the recorded name, select "Audible Call", then press

at step **3**.

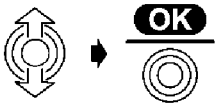
(For Handset Phonebook)

1 Press **LEFT SOFT KEY**.

2 Select the desired item.



3 Select "Edit".



4 Edit Name.
(max. 16 characters)

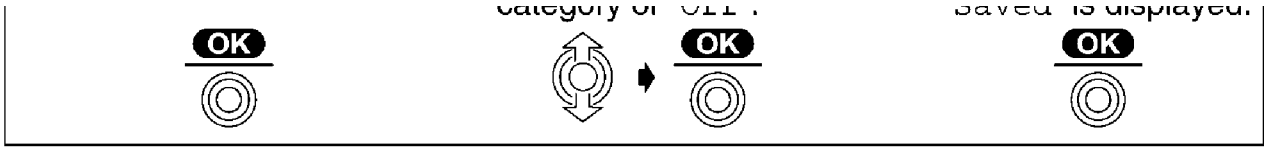
5 Press **JOYSTICK**.

6 Edit Phone Number.
(max. 24 digits)

7 Press **JOYSTICK**.

8 Select the desired category or "Off".

9 Select "Save", then "Saved" is displayed.



- To continue editing other caller information, repeat from step **2**.

8.4.5. Storing the Number in the Handset Phonebook

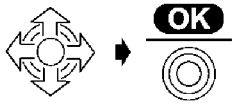
From the Caller ID List Menu

You can save the numbers from the Caller ID list into the handset phonebook, and you can edit (for calling) or delete item(s) in the Caller ID List.

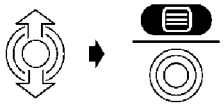
To exit the operation, press at any time.

1 Press **JOYSTICK** (or move).

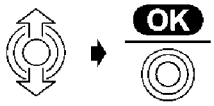
2 Select "Caller ID".



3 Select the desired item.



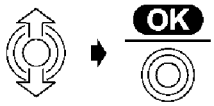
4 Select "Save Phonebook".



5 Enter Name, then press OK.
(max. 16 characters)
If required, edit phone number. (max. 24 digits)

6 Press **JOYSTICK**.

7 Select the desired category or "Off".



8 Select "Save", then "Saved" is displayed.

- When scrolling reaches the end of the list, an end tone will sound.
- If there are no items stored in the caller list when "Caller ID" is selected, the handset display shows "Memory Empty".

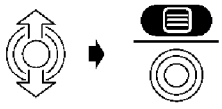
From the Redial List Menu

You can save numbers from the redial list into the handset phonebook, and you can edit (for calling) or delete item(s) in the redial list.

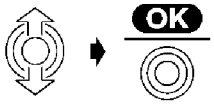
To exit the operation, press at any time.

1 Press **RIGHT SOFT KEY**.

2 Select the desired item.



3 Select "Save Phonebook".



4 Enter Name.
(max. 16 characters)

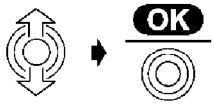
5 Press **JOYSTICK** twice.

twice

6 Select the desired

7 Select "Save", then

category or “Off”.



“Saved” is displayed.

• If there is no item stored in the redial list when is pressed, the handset display shows "Memory Empty".

8.4.6. Hot Keys (: Speed Dial)

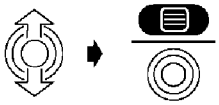
You can assign the dialling buttons 1 through 9 as hot keys. You can choose 9 phone numbers from the phonebook.

To exit the operation, press C.

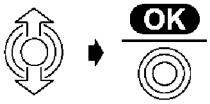
Registering a Phone Number as a Hot Key

1 Press **LEFT SOFT KEY**.

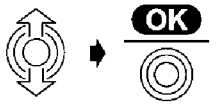
2 Select the desired item.



3 Select "Reg. to Hot Key".



4 Select the desired dialling button number.



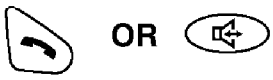
5 Select "Save", then "Saved" is displayed.

- If there are no items stored in the handset phonebook when searching for the desired item, the handset display shows "Memory Empty".
- If an item is already stored to a hot key, "✓" will be displayed on the left of the key number. If a hot key number with "✓" is selected, press "OK" to select "Overwrite".

Dialling with a Hot Key

1 Press and hold the dialling button registered as a hot key until a phone number is displayed.

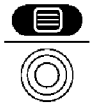
2 Press **TALK** or **SPEAKERPHONE**.



Deleting the Hot Key Registration

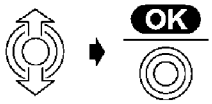
1 Press and hold the dialling button registered as a hot key until a phone number is displayed.

2 Press **JOYSTICK**.



3 Select "Delete".

4 Select "Yes", then "Deleted" is displayed.



- Handset phonebook registration will not be erased when hot key registration is deleted.

8.4.7. Voice Search

You can record up to 20 voice tags for the handset phonebook items, then you can search an item in the handset phonebook with your voice. If you set the Auto Voice Dial ON, the selected item with your voice is automatically dialled out.

Ensure that the icon is not flashing.

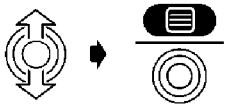
To exit the operation, press at any time.

Recording Voice Tag for Voice Search

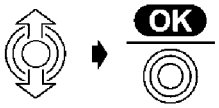
You must record voice tag 2 times.

1 Press **LEFT SOFT KEY**.

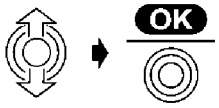
2 Select the desired item.



3 Select "Voice Tag".



4 Select "Record".



(Beep)

5 **Start recording**
- Record voice tag within **2 seconds** after "Voice Tag Record" is displayed.
- **20 cm** away from the Mic.
- Speak clearly in the **quiet room**.

(Beep)

Repeat recording
- Record voice tag again for confirmation.
- If voice tag recording is completed, "Saved" will appear on the display.

- button lights after step **4**.
- Please try recording a different voice tag if similar voice tag is already recorded.
- "Timeout Please Try Again" is displayed if recording time is over 10 seconds.
- "Too Long Please Try Again" is displayed if voice tag is recorded more than 2 seconds.
- "Too Different Please Try Again" is displayed if the 2nd voice tag was recorded too different from the 1st one.
- "Already Exists Please Try Again" is displayed after the 2nd recording if similar voice tag exists already.
- If key Tone is OFF, a beep will not sound.
- Voice Search performs the best when used by the same person who recorded the voice tag. If a different person tries to perform a voice search, this feature may not function properly.
- If voice tag is recorded, will appear on the display of the handset phonebook item.

Searching with Your Voice

1 Press and hold **LEFT SOFT KEY**.

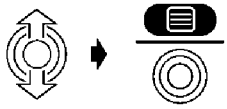
2 Speak a name of item in the Voice Tag List.

- If there are no voice tags stored in the handset phonebook when is pressed and held, "Voice Tag Memory Empty" is displayed.
- If the matched voice tag is found, the recorded voice tag is played and the item in the handset phonebook with the voice tag is displayed, then you can make a call if you press . If Auto Voice Dial is On, it is automatically dialled out.
- "No Match Please Try Again" is displayed if there are no matched voice tag, then the unit will retry up to 5 times automatically.
- "Timeout Please Try Again" is displayed if searching time is over 10 seconds.
- Voice Search performs the best when used by the same person who recorded the voice tag. If a different person tries to perform a voice search, this feature may not function properly.
- **If a desired voice tag is often not found, delete the voice tag and try recording a different voice tag.**

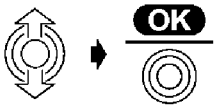
Playing a Voice Tag

1 Press **LEFT SOFT KEY**.

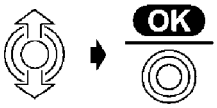
2 Select the desired item.



3 Select "Voice Tag".



4 Select "Play".

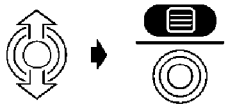


- button lights after step **4**.

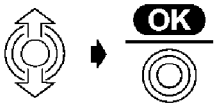
Deleting a Voice Tag

1 Press **LEFT SOFT KEY**.

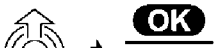
2 Select the desired item.



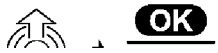
3 Select "Voice Tag".

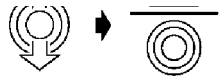
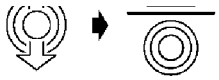


4 Select "Delete".



5 Select "Yes".



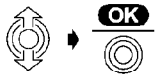
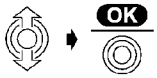
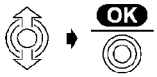
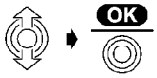



8.4.8. Phonebook Copy

You can copy handset phonebook information between cordless handsets registered to the same base unit. The handset phonebook copy must be performed while in intercom mode.

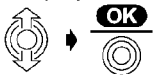
To exit the operation, press **at any time.**

Example: Copying a Handset Phonebook Item to Another Handset Phonebook

	<Cordless Handset 1: Receiver>	<Cordless Handset 2: Sender>
1	Press **INTERCOM** (INT), then press the desired cordless handset number (ABC2).	
2		Press **TALK**.
	(During an intercom call)	
3	Press **JOYSTICK**.	
4	Select "Recv Phonebook". "Start Copying" is displayed. 	
5		Press **JOYSTICK**.
6		Select "Send Phonebook". 
7		Select the desired item to copy. 
8		Select "Copy One Item" then "Start Copying" is displayed. 

Example: Copying All Handset Phonebook Items to Another Handset Phonebook

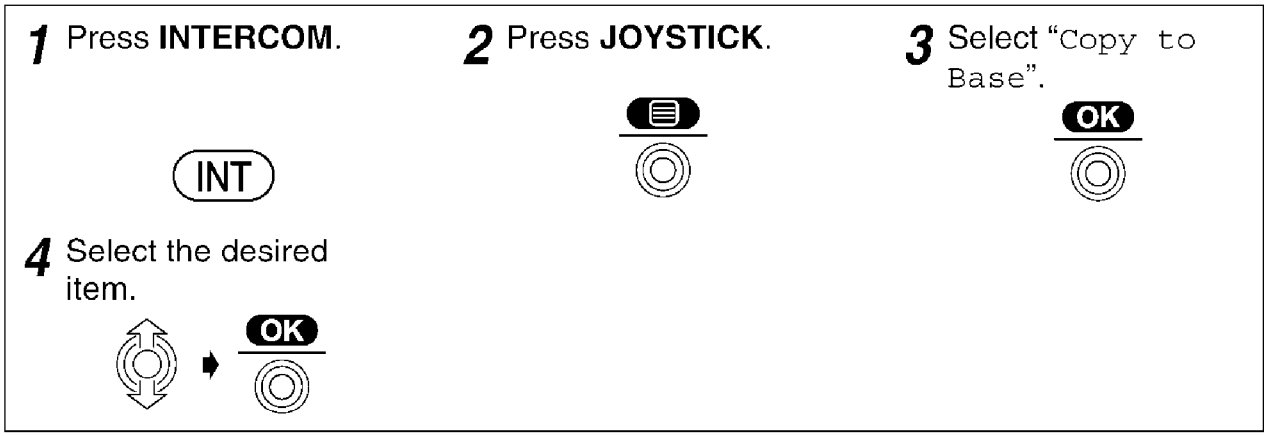
To exit the operation, press (0) at any time.

Follow steps **1** to **6** shown above, then:		
	<Cordless Handset 1: Receiver>	**<Cordless Handset 2: Sender>**
7		Press **JOYSTICK**.
8		Select "Copy All Items" then "Start Copying" is displayed. 

- When copying is completed, a beep sounds and "Copy Complete" is displayed. After a few seconds, the handset display will return to the intercom call. "Copy Incomplete" will be displayed on the sender handset if the receiver handset memory is full. If "Copy Failure" is displayed on the sender handset, the receiver did not prepare for copying.
- If you move the **JOYSTICK** up or down before pressing **JOYSTICK** on step **7**, all items will not be copied. The items, from the item indicated now to the last item, are copied.

the item indicated now to the last item, are copied.

Example: Copying a Handset Phonebook Item to the Base Unit Phonebook



- If "Memory Full" is displayed when you select "Copy to Base", the base unit phonebook is full.
- Items in the handset phonebook can be copied one at a time.

8.5. Cordless Handset Registration to a Base Unit

The cordless handset supplied with the base unit is already registered. If an optional cordless handset is purchased, it must be registered as follows.

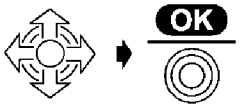
Charge the optional cordless handset batteries for 7 hours before initial use.

Cordless handset registration must be completed within 1 minute after pressing . If over 1 minute, press then start over again.

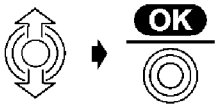
To exit the operation, press at any time.

1 Press **JOYSTICK** (or move).

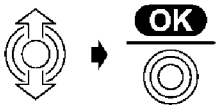
2 Select "Setting Handset".



3 Select "Registration".

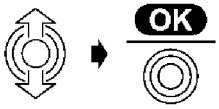


4 Select "Register H/set".



5 **Press and hold button on the Base Unit (for about 3 seconds) until the tone sounds.**

6 Select the desired base unit.



7 Enter 4-digit Base Unit PIN.
(Factory Preset 0000)

8 Press **JOYSTICK**.

When a cordless handset is registered successfully, a confirmation tone sounds and the "Y" icon is displayed.

- If you enter the incorrect Base Unit PIN, an error tone sounds. Repeat from step **1**.
- To register a cordless handset to more than one base unit, repeat from step **1** with the other base unit(s).
- The cordless handset main menu may changes depending on the base unit that the cordless handset is registered to.

Note for Service:

At step 7, enter * 7 0 0 0. Finally Handset will be linked to Base Unit.

Cancelling a Cordless Handset

Each cordless handset can cancel itself or another cordless handset. This feature is usually used to cancel a link between Cordless Handset and Base Unit.

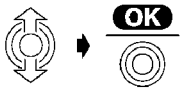
To exit the operation, press at any time.

1 Press **JOYSTICK** (or move).

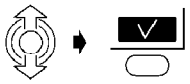
2 Select "Setting Base".

3 Enter 4-digit Base Unit PIN. (Factory Preset 0000)

4 Select "Cancel Handset".



5 Search and press **RIGHT SOFT KEY** to attach "✓" to the handset(s) to cancel.



6 Press **JOYSTICK**.

Cancelling a Base Unit

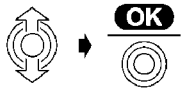
If a cordless handset is out of range and/or power is OFF when **Cancelling a Cordless Handset**, the previous base unit number will still remain in the cancelled cordless handset. Therefore, you need to cancel the base unit registered in the cancelled cordless handset.

To exit the operation, press at any time.

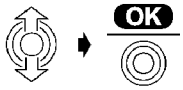
1 Press **JOYSTICK** (or move).

2 Select "Setting Handset".

3 Select "Registration".

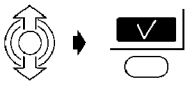


4 Select "Cancel Base".



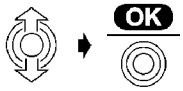
5 Enter 4-digit Handset PIN. (Factory Preset 0000)

6 Search and press **RIGHT SOFT KEY** to attach "✓" to the base unit to cancel.



7 Press **JOYSTICK**.

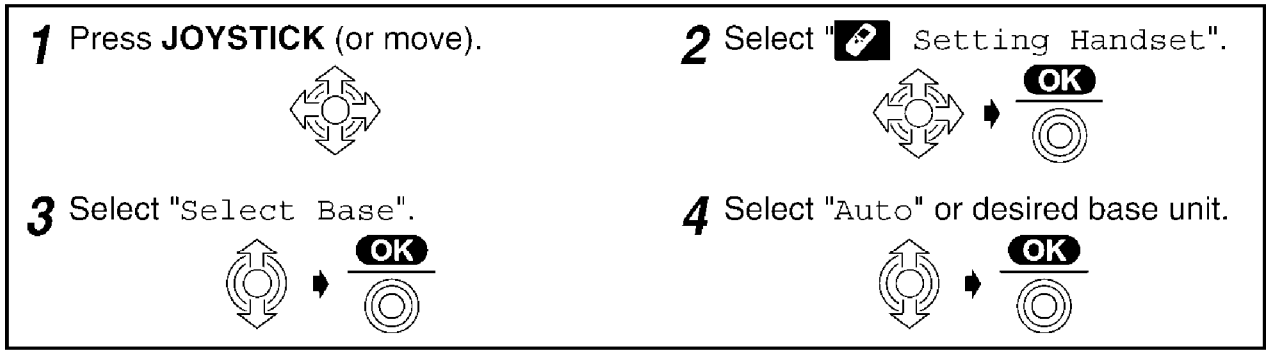
8 Select "Yes", then " Deleted" is displayed.



8.6. Base Unit Selection

When "Auto" (Automatic Base Unit Selection) is selected, the cordless handset automatically searches for other registered base units if you move outside of the radio range of the current base unit.
When a specified base unit is selected, the cordless handset will access that base unit only. Calls (both incoming and outgoing) can be conducted only via the selected base unit, even if the radio cells overlap with neighbouring base units.

To exit the operation, press at any time.



- The factory preset is "Auto".

9. ANSWERING SYSTEM

If you set the current date and time and set the answering system ON, a synthesized voice announce the date and time an/a incoming/memo message was recorded after playback-**Voice Date/Time Stamp**.
The total recording capacity is approximately 30 minutes or 64 messages. The greeting recording time is limited to 2 minutes and 30 seconds. We recommend you to record a brief greeting message in order to leave more time for recording new incoming/memo messages. All messages (greeting, incoming and memo) are stored indefinitely on a “Flash memory” IC chip-even if a power failure occurs. All of the messages are saved until you erase them-**Flash Memory Message Backup**.

9.1. Answering System ON/OFF

When you set the answering system ON, a caller can leave her/his messages.

9.1.1. Base Unit

Setting ON

Press **ANSWER ON**.

➧ Indicator lights on.

Setting OFF

Press **ANSWER ON** again.

➧ Indicator lights off.

9.1.2. Cordless Handset

Setting ON

1 Press **JOYSTICK** (or move).

2 Select "TAM Operation".

3 Select "Answer On", then is displayed.

Setting OFF

1 Press **JOYSTICK** (or move).

2 Select "TAM Operation".

3 Select "Answer Off", then is disappeared.

9.2. Greeting Message

Playing Back Pre-Recorded/Your Own Greeting Message

If you do not record your own greeting message, one of two pre-recorded greeting messages will be played. A pre-recorded greeting message depends on the selecting of same phone caller's recording time.

When the recording time is set to "1 Minute" or "No Limit" (30 minutes).

- "Hello, we are not available now. Please leave your name and phone number after the beep. We will return your call."

When the recording time is set to "Greeting Only".

- "Hello, We are not available now. Please call again. Thank you for your call."

9.3. Incoming/Memo Messages

Incoming messages and memo messages are stored in chronological order. New messages cannot be recorded when "Full" is displayed and [ ] indicator on the base unit flashes rapidly. We recommend you erase unnecessary messages after each playback to leave more time for recording new message(s).

9.3.1. Base Unit

Deleting One Incoming/Memo Message

(During Playing Message) → Press **ERASE**.

Deleting All Incoming/Memo Messages

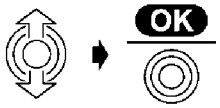
All recorded messages, except the greeting message, can be erased at one time.

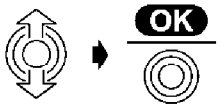
1 Press **ERASE**.

2 Within 5 seconds after the guidance, press **ERASE**.

9.3.2. Cordless Handset

Deleting One Incoming/Memo Message

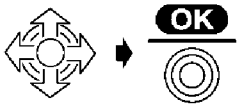
(During Playing Message) ➧ **1** Press **JOYSTICK**. **2** Select "Delete". 

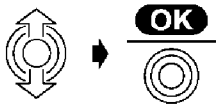
3 Select "Yes", then "Deleted" is displayed. 

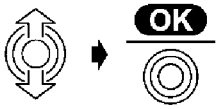
- You can also delete the message by pressing during playing message.

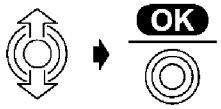
Deleting All Incoming/Memo Messages

1 Press **JOYSTICK**.

2 Select "TAM Operation". 

3 Select "Delete Message". 

4 Select "Delete All". 

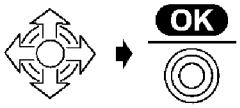
5 Select "Yes", then "Deleted" is displayed. 

9.4. Answering System Direct Command

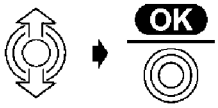
You can operate the answering system by pressing dialling button as direct command.

1 Press **JOYSTICK** (or move).

2 Select "TAM Operation".



3 Select "Play New Msg." or "Play All Msg.".



Follow steps **1** to **3** shown above, then:	
Press 1	To repeat a message.
Press ABC 2	To skip a message.
Press WXYZ 9	To stop a message playback.
Press A→a * GHI 4	To delete one incoming/memo message. *1
Press A→a * JKL 5	To delete all incoming/memo message.

Follow steps **1** to **2** shown above, then:	
Press DEF 3	To enter the answering system setting menu.
Press GHI 4	To playback new incoming/memo message(s).
Press JKL 5	To playback all incoming/memo message(s).
Press MNO 6	To playback a greeting message.
Press PQRS 7 GHI 4	To record a memo message.
Press PQRS 7 MNO 6	To record your own greeting message.
Press TUV 8	To set the answering system ON.
Press WXYZ 9	To stop playing back or recording message.
Press 0	To set the answering system OFF.
Press A→a * MNO 6	To delete your own recorded greeting message.

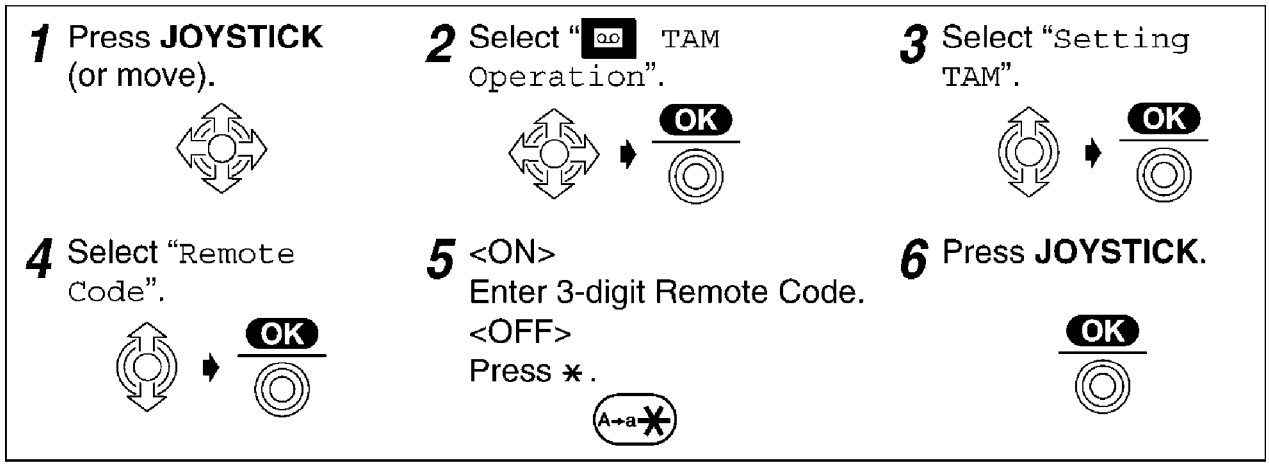
*1 This function is available only during incoming/memo message playback.

† This function is available only during incoming/memo message playback.

9.5. Remote Operation from a Touch Tone Phone

You can operate the answering system from any touch tone phone.
Firstly you must store your remote code using the handset near the base unit.
The 3-digit remote code prevents unauthorised use of your answering system for listening to recorded messages.

Setting the Remote Code ON/OFF



- The factory preset is Remote Code OFF.

10. DISASSEMBLY INSTRUCTIONS

10.1. Base Unit

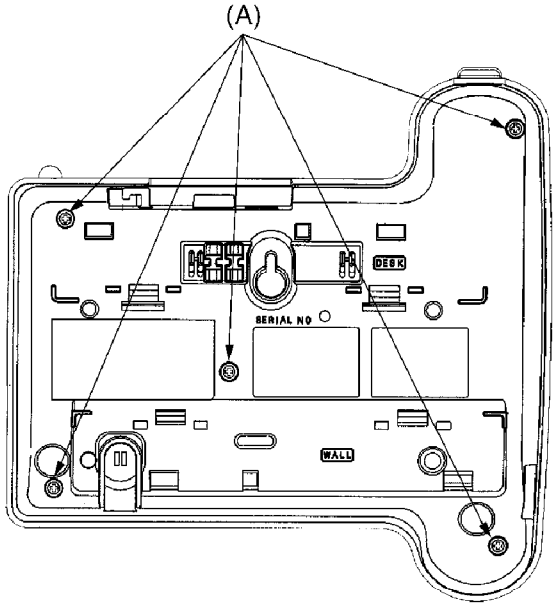


Fig. 1

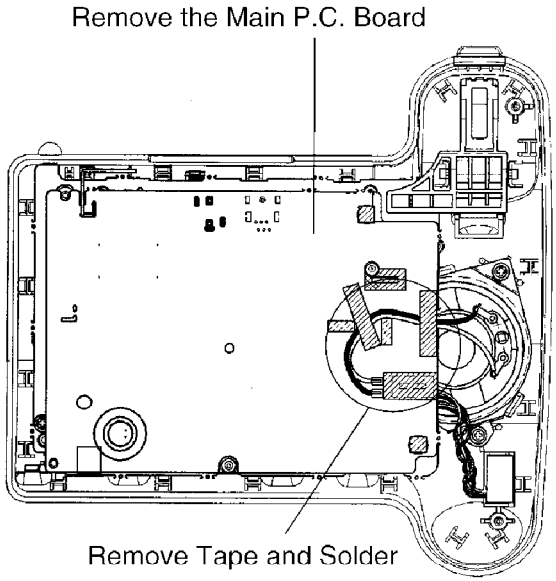


Fig. 2

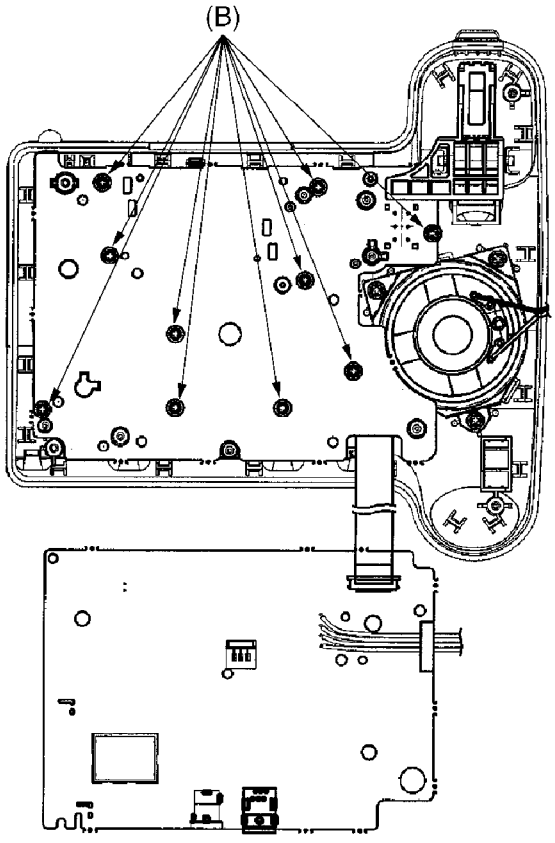


Fig. 3

Shown in Fig.-	To Remove	Remove
1	Lower Cabinet	Screws (2.6 × 14).....(A) × 5
2	Main P.C. Board	Tape and Solder
		Main P.C. Board
3	Operational P.C. Board	Screws (2.6 × 8).....(B) × 10
		Operational P.C. Board

10.2. Cordless Handset

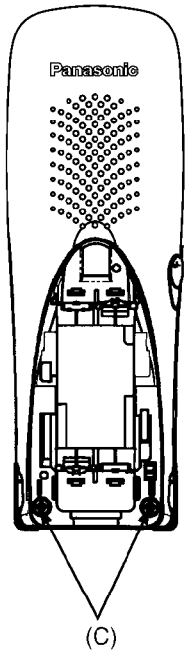


Fig.4

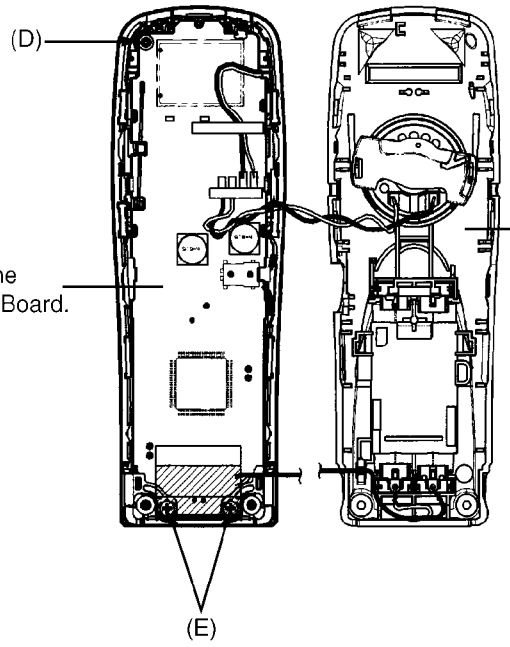
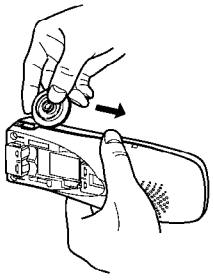
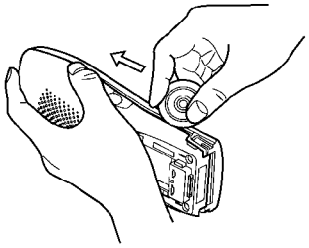


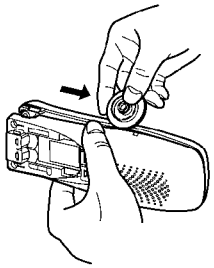
Fig.6

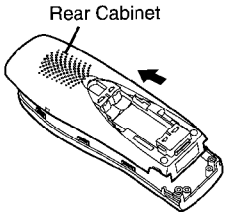


Insert a JIG (PQDJ10006Y) between the Front and the Rear Cabinet, then pull it along the gap to open the Cabinet.



Likewise, open the other side of the Cabinet.





Remove the Rear Cabinet by pushing it upward.

Fig.5

Shown in Fig.-	To Remove	Remove
4	Rear Cabinet	Screws (2 × 10).....(C) × 2
5		Follow the procedure.
6	Main P.C. Board	Screw (2 × 8).....(D) × 1
		Screws (2 × 8).....(E) × 2
		Main P.C. Board

10.3. Charger Unit

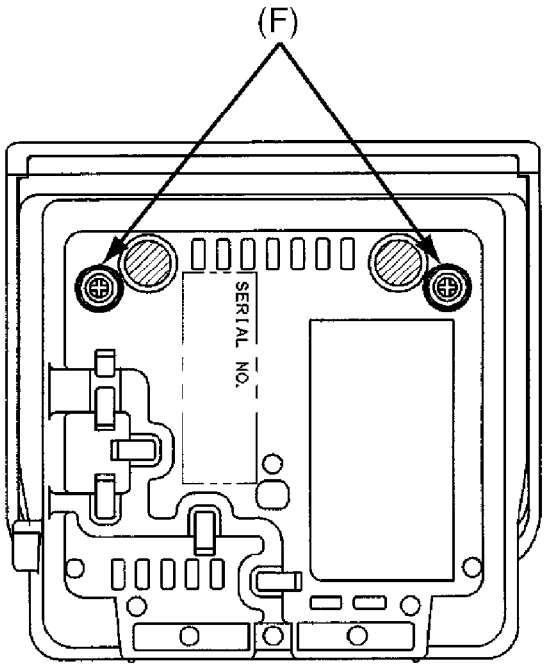


Fig. 7

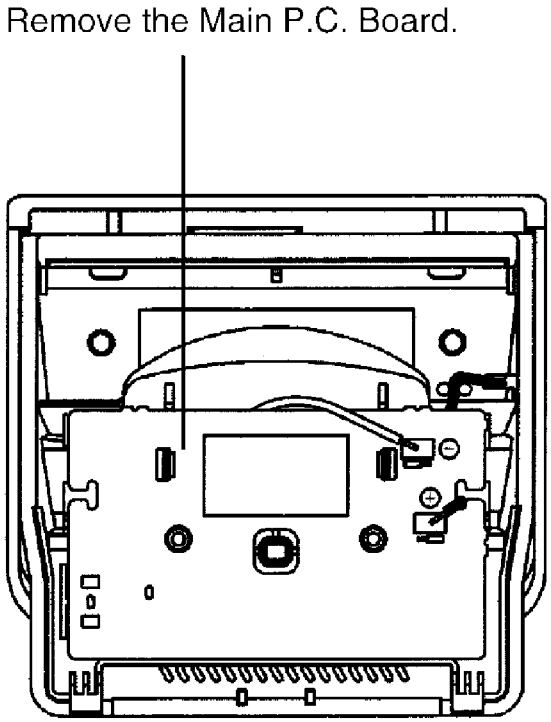
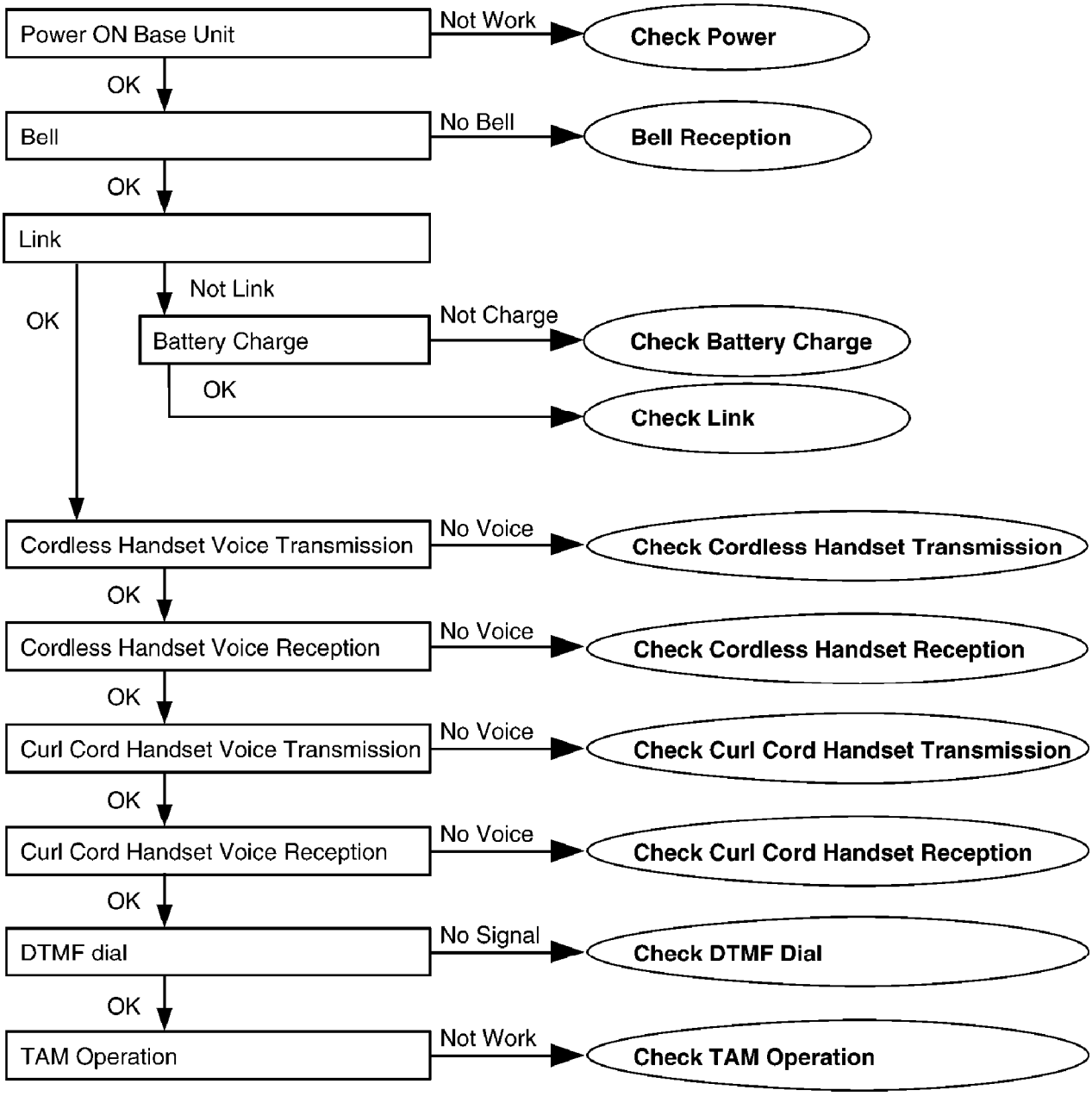


Fig. 8

Shown in Fig.-	To Remove	Remove
7	Lower Cabinet	Screws (2.6 × 14).....(F) × 2
8	Main P.C. Board	Main P.C. Board

11. TROUBLESHOOTING GUIDE

Flow Chart



Cross Reference:

Check Power (

)

Bell Reception (

)

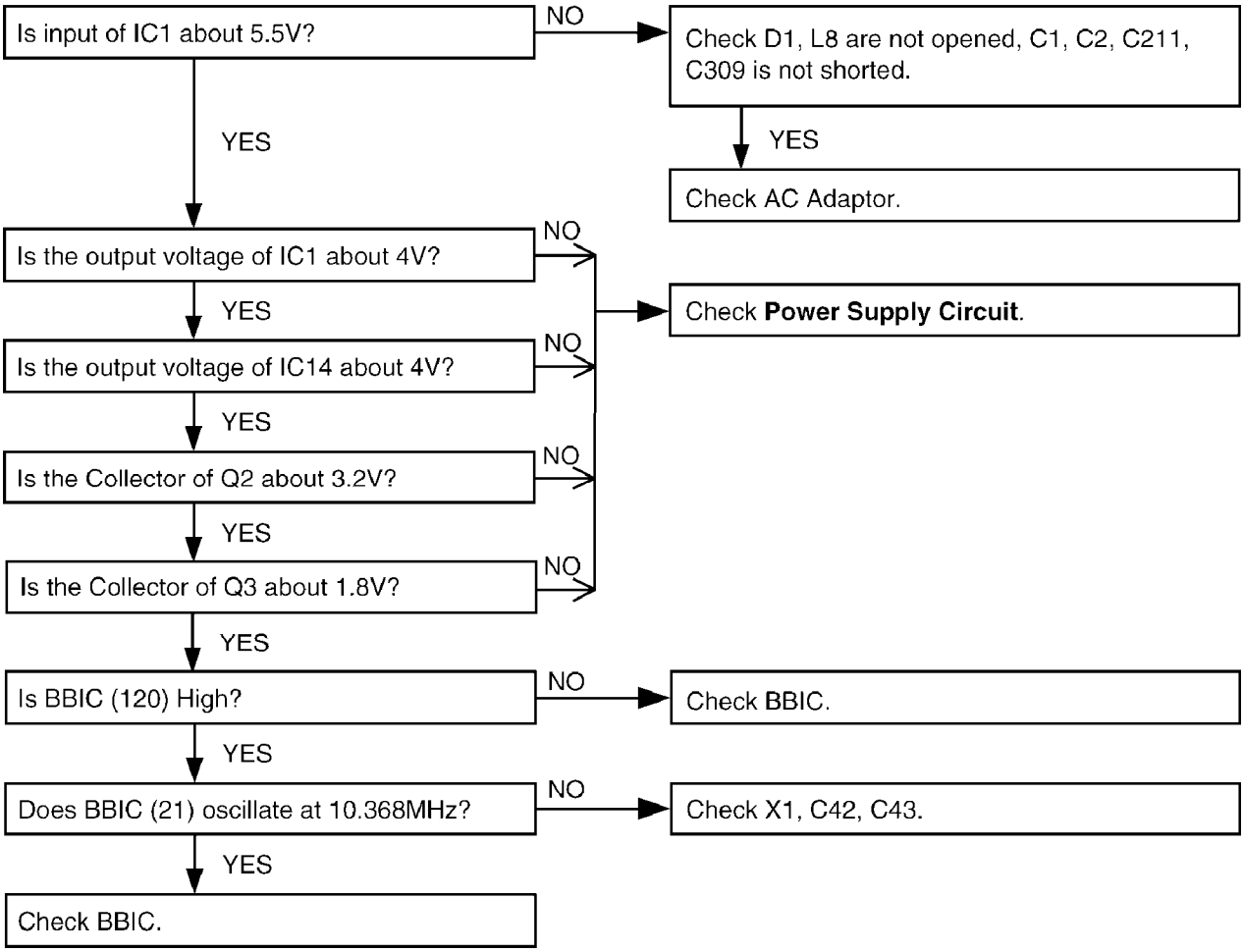
Check Battery Charge (

)
Check Link (
)
Check Cordless Handset Transmission (
)
Check Cordless Handset Reception (
)
Check Curl Cord Handset Transmission (
)
Check Curl Cord Handset Reception (
)
Check DTMF Dial (
)
Check TAM Operation (
)

11.1. Check Power

11.1.1. Base Unit

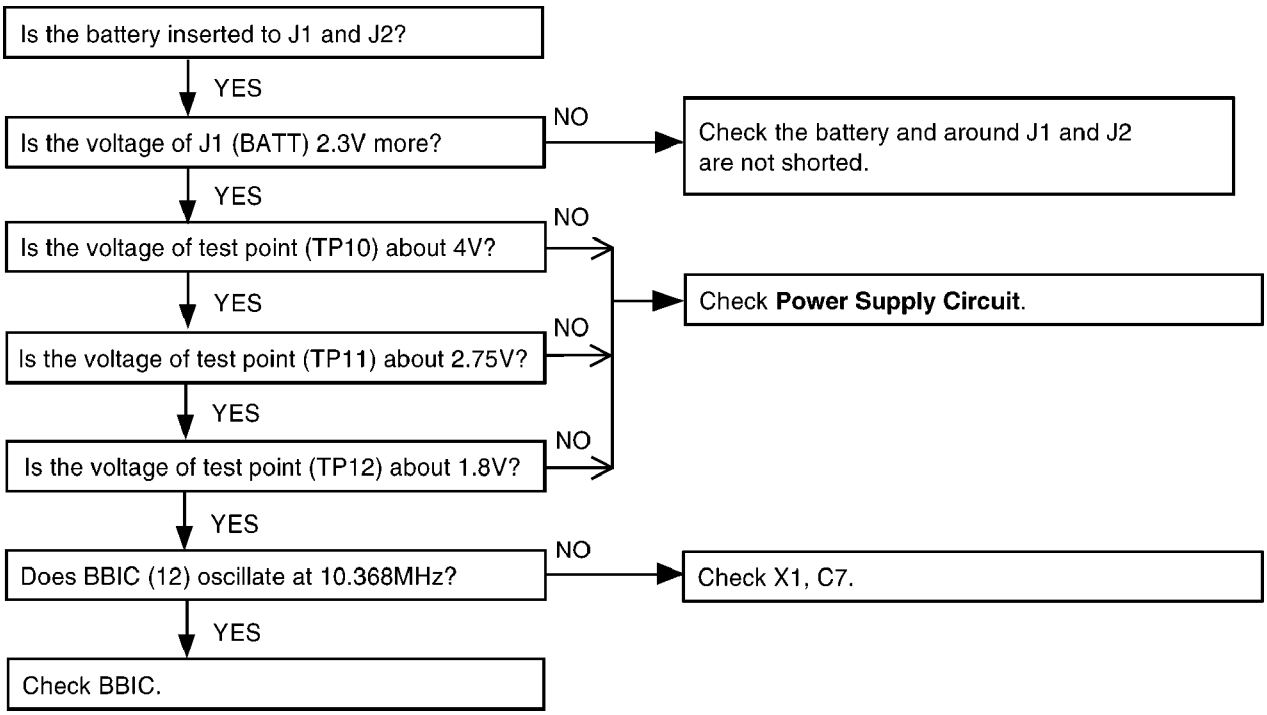
Is the AC Adaptor inserted into AC outlet? (Check AC Adaptor's specification.)



Cross Reference
Power Supply Circuit (
)

Note:
BBIC is IC2.

11.1.2. Cordless Handset

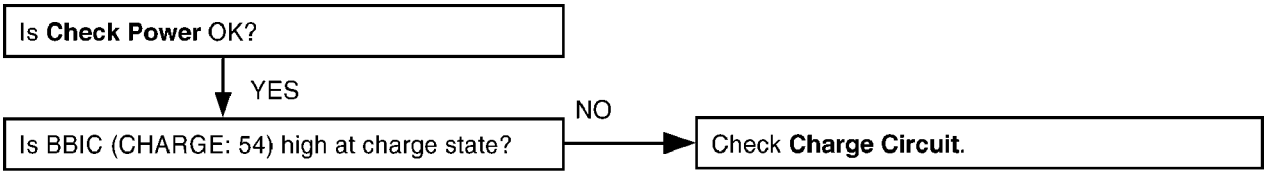


Cross Reference
Power Supply Circuit/Reset Circuit (
)

Note:
BBIC is IC1.

11.2. Check Battery Charge

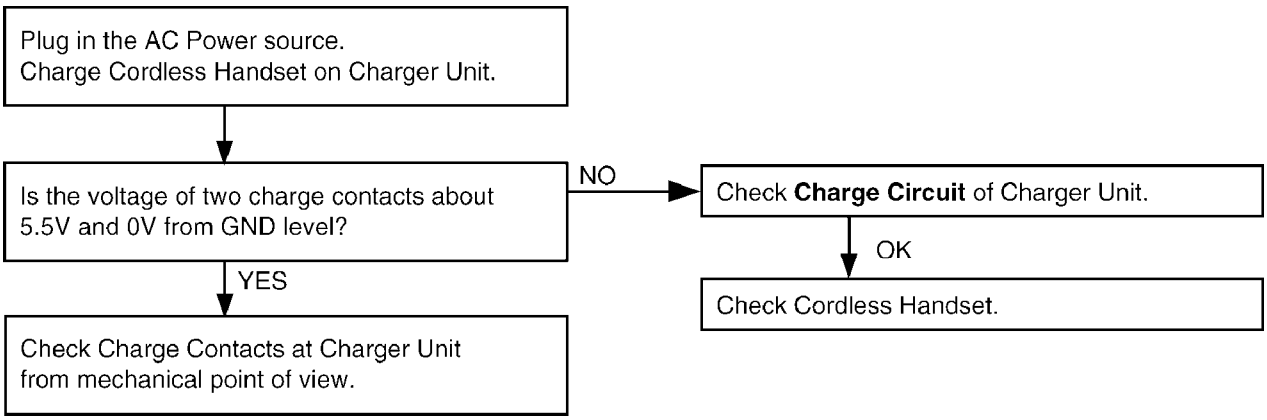
11.2.1. Cordless Handset



Cross Reference:
Check Power (
)
Charge Circuit (
)

Note:
BBIC is IC1.

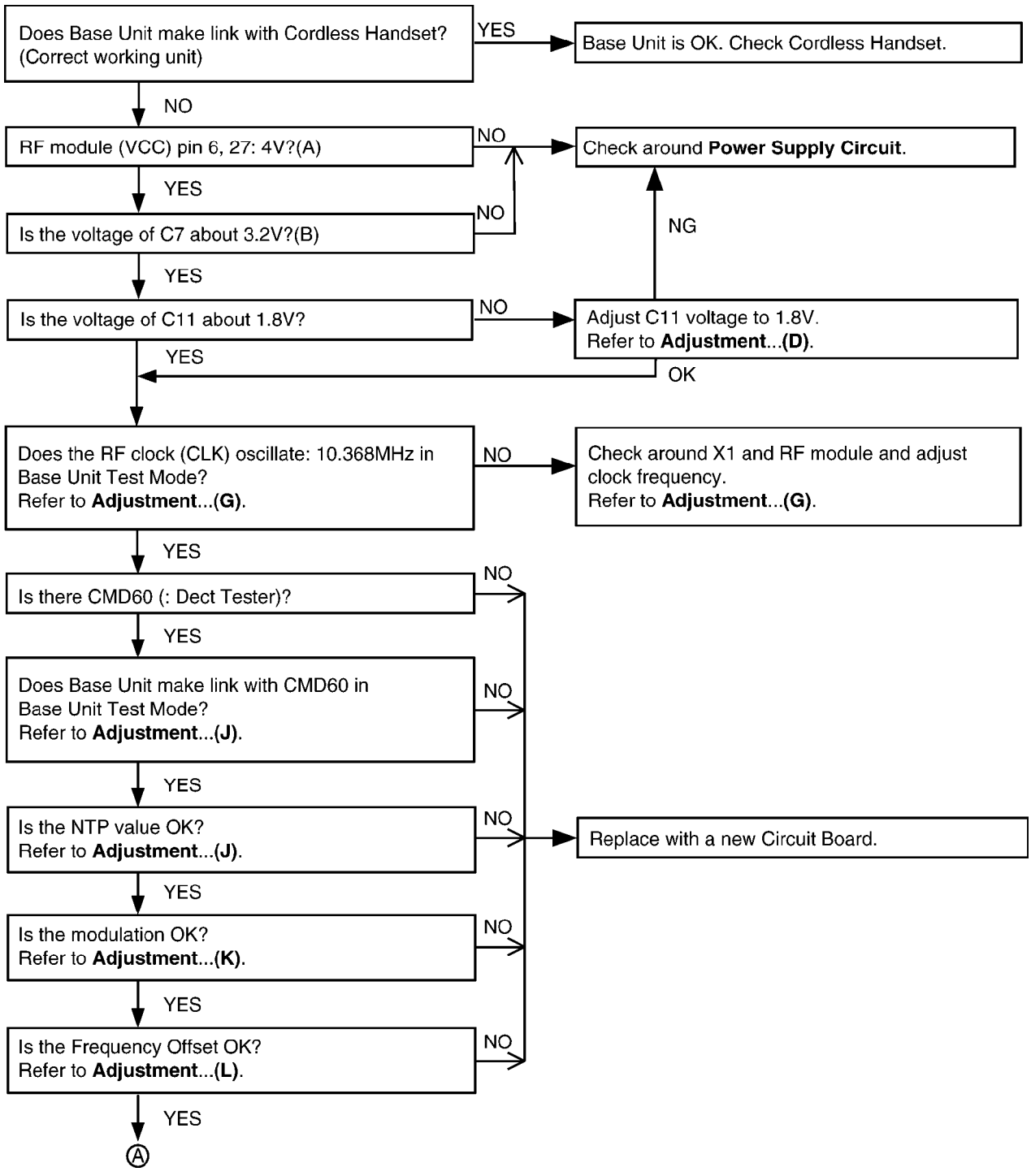
11.2.2. Charger Unit

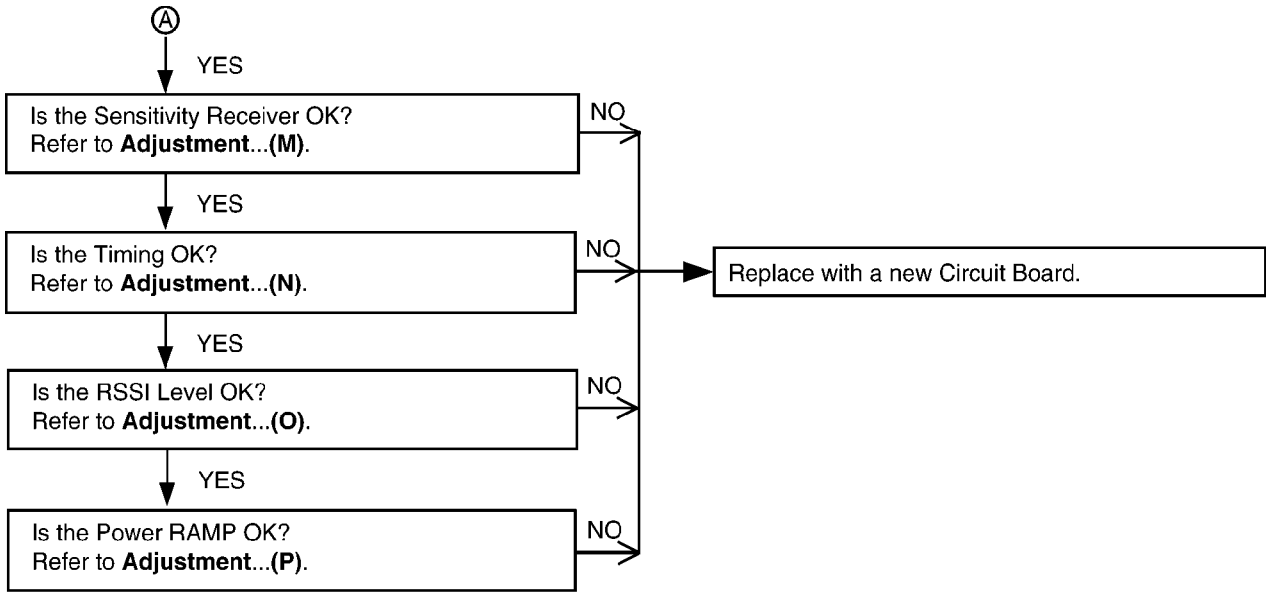

Plug in the AC Power source.
Charge Cordless Handset on Charger Unit.
Is the voltage of two charge contacts about 5.5V and 0V from GND level?
NO
Check Charge Circuit of Charger Unit.
OK
Check Cordless Handset.
YES
Check Charge Contacts at Charger Unit from mechanical point of view.

Cross Reference:
Charge Circuit (
)

11.3. Check Link

11.3.1. Base Unit


Does Base Unit make link with Cordless Handset? (Correct working unit)
YES
Base Unit is OK. Check Cordless Handset.
NO
RF module (VCC) pin 6, 27: 4V?(A)
NO
Check around **Power Supply Circuit**.
YES
Is the voltage of C7 about 3.2V?(B)
NO
NG
YES
Is the voltage of C11 about 1.8V?
NO
Adjust C11 voltage to 1.8V. Refer to **Adjustment...(D)**.
YES
OK
Does the RF clock (CLK) oscillate: 10.368MHz in Base Unit Test Mode? Refer to **Adjustment...(G)**.
NO
Check around X1 and RF module and adjust clock frequency. Refer to **Adjustment...(G)**.
YES
Is there CMD60 (: Dect Tester)?
NO
YES
Does Base Unit make link with CMD60 in Base Unit Test Mode? Refer to **Adjustment...(J)**.
NO
YES
Is the NTP value OK? Refer to **Adjustment...(J)**.
NO
Replace with a new Circuit Board.
YES
Is the modulation OK? Refer to **Adjustment...(K)**.
NO
YES
Is the Frequency Offset OK? Refer to **Adjustment...(L)**.
NO
YES
Ⓐ

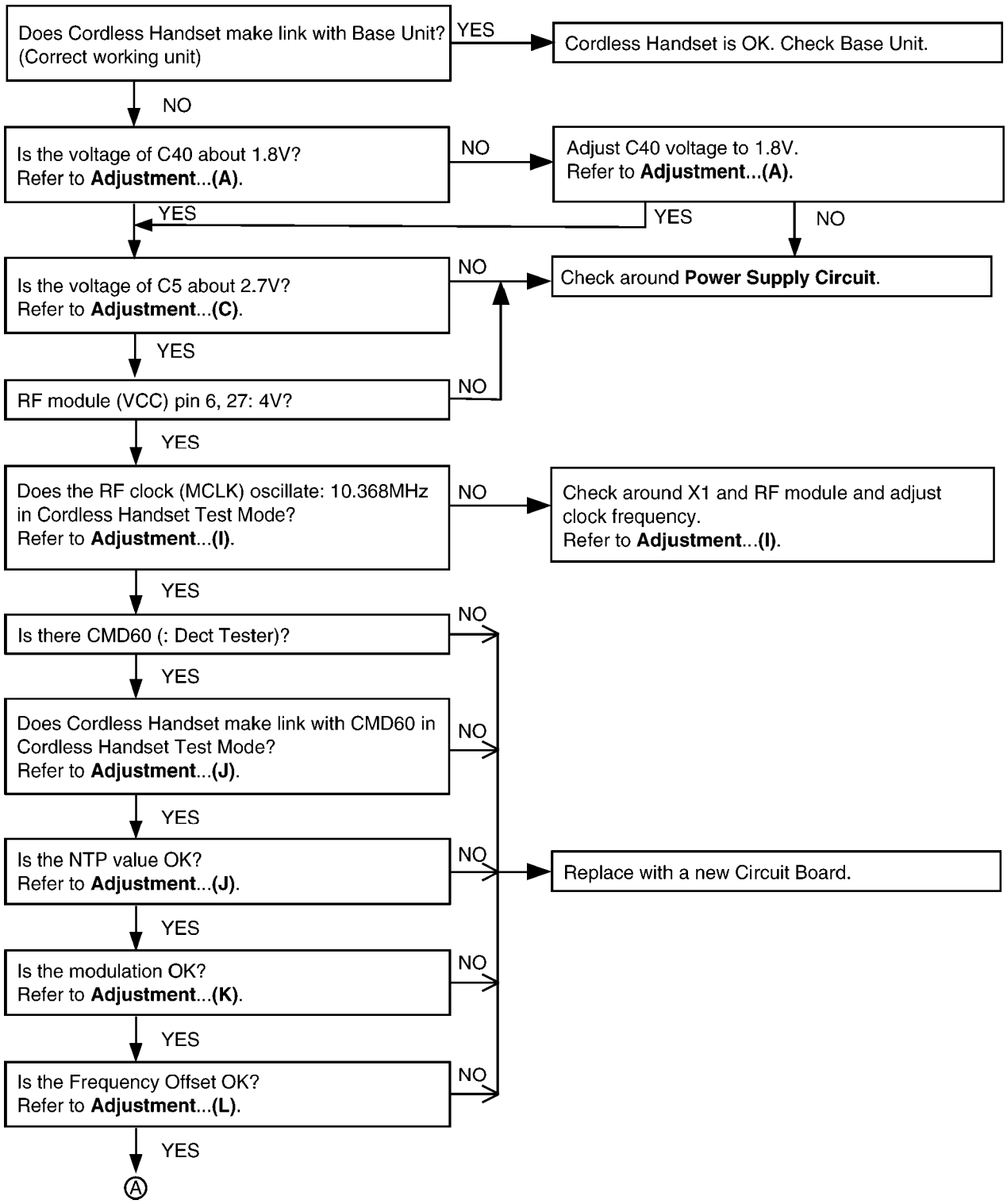


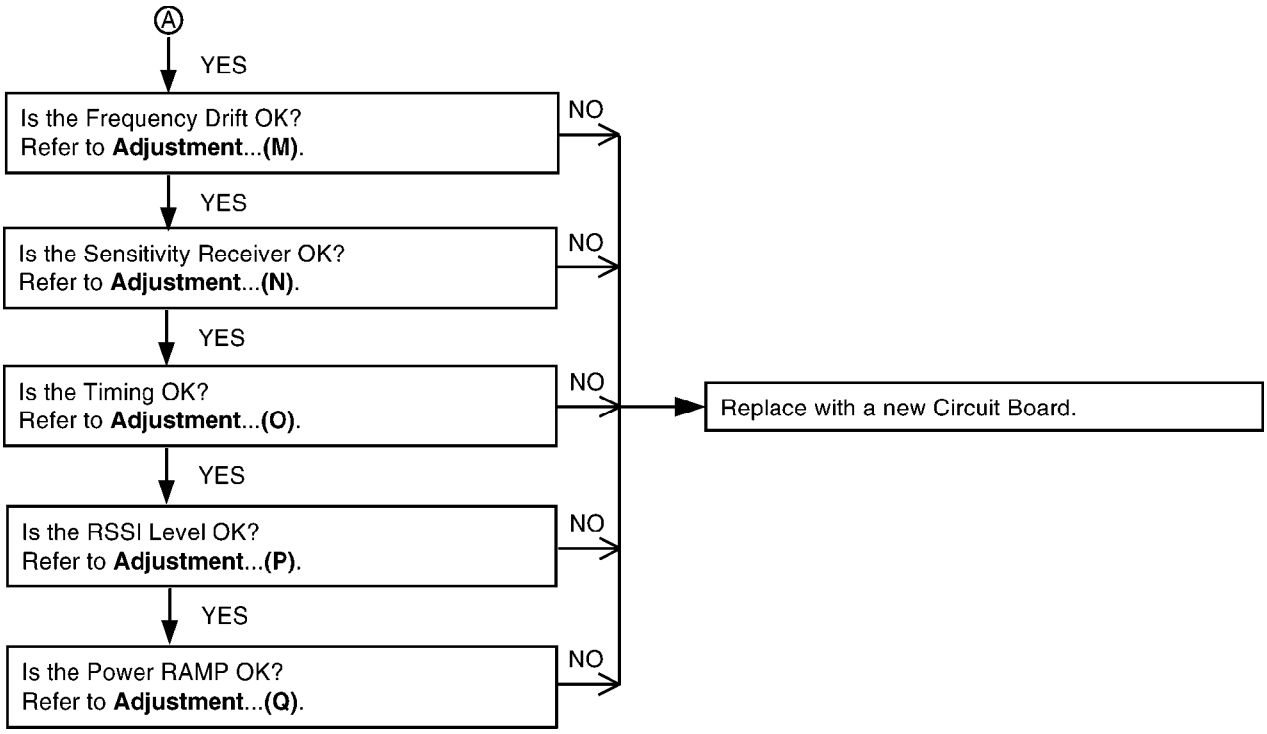
Cross Reference:

Power Supply Circuit/Reset Circuit (
)

Adjustment (Base Unit) (
)

11.3.2. Cordless Handset


Does Cordless Handset make link with Base Unit? (Correct working unit)
YES
Cordless Handset is OK. Check Base Unit.
NO
Is the voltage of C40 about 1.8V? Refer to **Adjustment...(A)**.
NO
Adjust C40 voltage to 1.8V. Refer to **Adjustment...(A)**.
YES
YES
NO
Is the voltage of C5 about 2.7V? Refer to **Adjustment...(C)**.
NO
Check around **Power Supply Circuit**.
YES
RF module (VCC) pin 6, 27: 4V?
NO
YES
Does the RF clock (MCLK) oscillate: 10.368MHz in Cordless Handset Test Mode? Refer to **Adjustment...(I)**.
NO
Check around X1 and RF module and adjust clock frequency. Refer to **Adjustment...(I)**.
YES
Is there CMD60 (: Dect Tester)?
NO
YES
Does Cordless Handset make link with CMD60 in Cordless Handset Test Mode? Refer to **Adjustment...(J)**.
NO
YES
Is the NTP value OK? Refer to **Adjustment...(J)**.
NO
Replace with a new Circuit Board.
YES
Is the modulation OK? Refer to **Adjustment...(K)**.
NO
YES
Is the Frequency Offset OK? Refer to **Adjustment...(L)**.
NO
YES
A

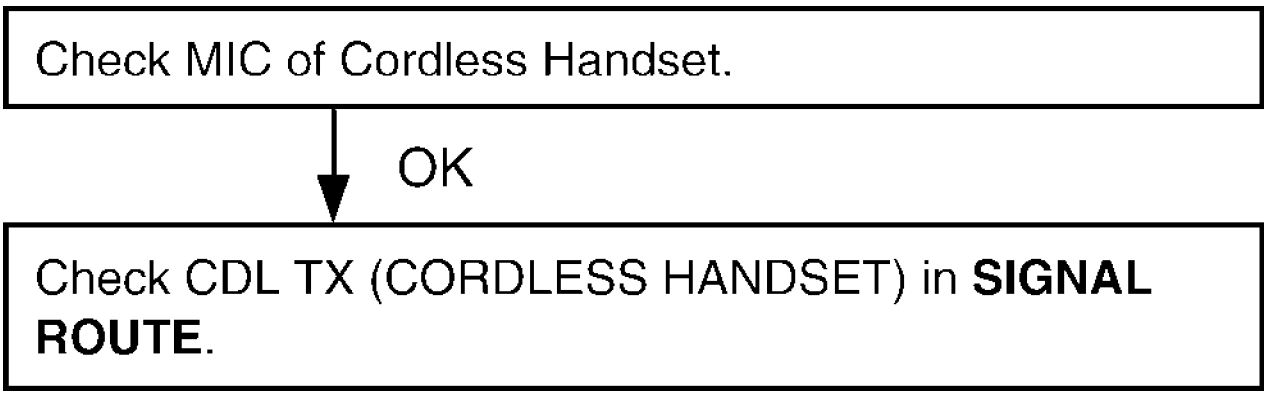


Cross Reference

Power Supply Circuit/Reset Circuit ( )

Adjustment (Cordless Handset) ( )

11.4. Check Cordless Handset Transmission

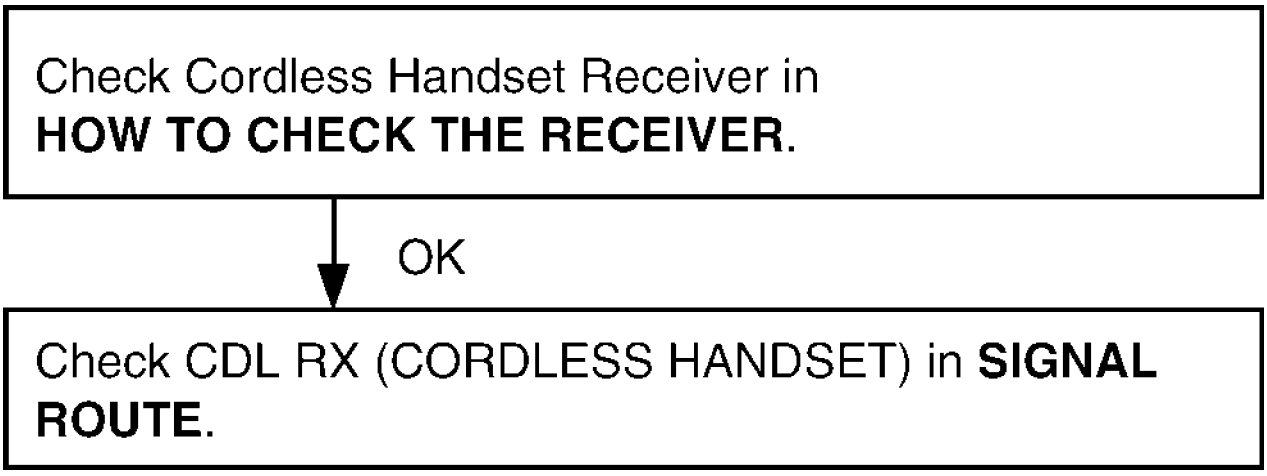


Cross Reference:

SIGNAL ROUTE (

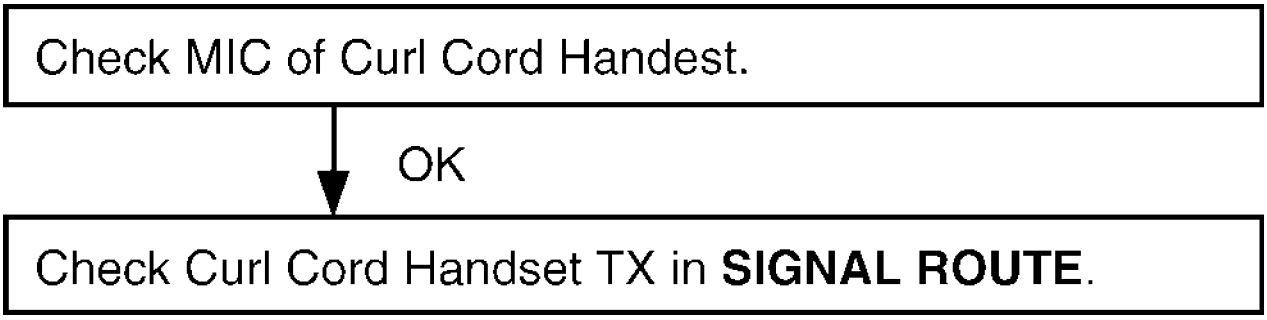
)

11.5. Check Cordless Handset Reception



Cross Reference:
HOW TO CHECK THE CORDLESS HANDSET RECEIVER (
).
SIGNAL ROUTE (
)

11.6. Check Curl Cord Handset Transmission



Cross Reference:
SIGNAL ROUTE (
)

11.7. Check Curl Cord Handset Reception

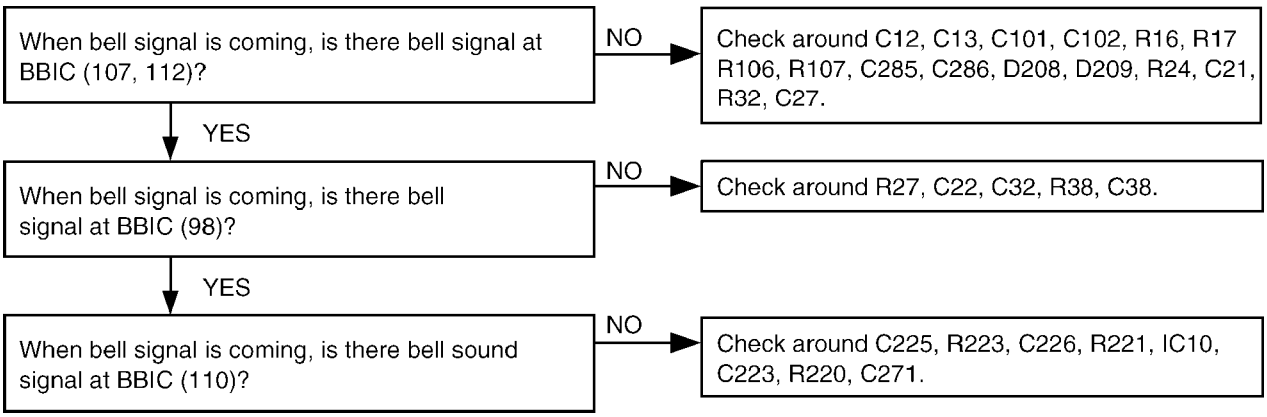
Cross Reference:
HOW TO CHECK THE CORDLESS HANDSET RECEIVER (
)
SIGNAL ROUTE (
)

11.8. Check Caller ID

Cross Reference:
SIGNAL ROUTE (
)

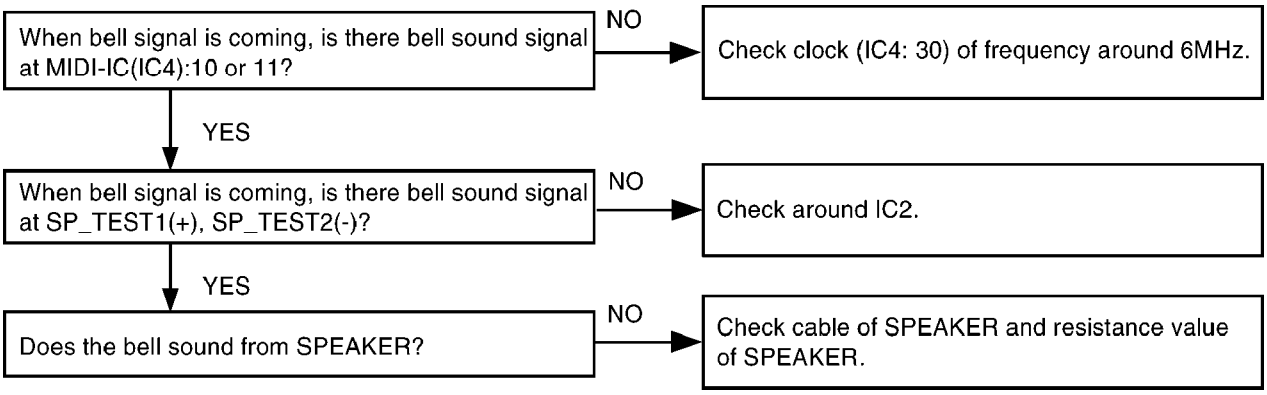
11.9. Bell Reception

11.9.1. Base Unit


When bell signal is coming, is there bell signal at BBIC (107, 112)?
NO
Check around C12, C13, C101, C102, R16, R17 R106, R107, C285, C286, D208, D209, R24, C21, R32, C27.
YES
When bell signal is coming, is there bell signal at BBIC (98)?
NO
Check around R27, C22, C32, R38, C38.
YES
When bell signal is coming, is there bell sound signal at BBIC (110)?
NO
Check around C225, R223, C226, R221, IC10, C223, R220, C271.

Note:
BBIC is IC2.

11.9.2. Cordless Handset


When bell signal is coming, is there bell sound signal at MIDI-IC(IC4):10 or 11?
NO
Check clock (IC4: 30) of frequency around 6MHz.
YES
When bell signal is coming, is there bell sound signal at SP_TEST1(+), SP_TEST2(-)?
NO
Check around IC2.
YES
Does the bell sound from SPEAKER?
NO
Check cable of SPEAKER and resistance value of SPEAKER.

Cross Reference:
Telephone Line Interface (
)
Check Link (
)
HOW TO CHECK THE CORDLESS HANDSET AND BASE UNIT SPEAKER (
)

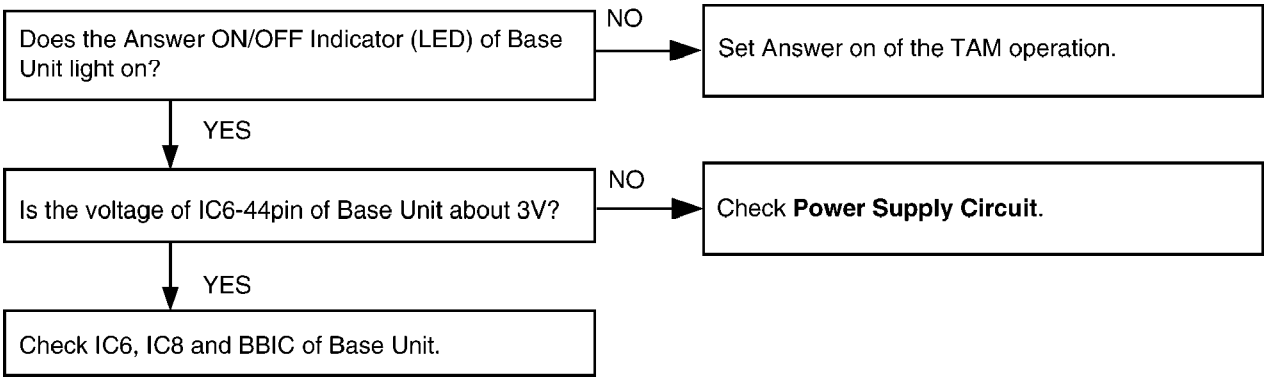
Note:
BBIC is IC1.

11.10. Check DTMF Dial

Check DTMF TONE TEL OUT in **SIGNAL ROUTE**.

Cross Reference:
SIGNAL ROUTE (
)

11.11. Check TAM Operation


Does the Answer ON/OFF Indicator (LED) of Base Unit light on?
NO
Set Answer on of the TAM operation.
YES
Is the voltage of IC6-44pin of Base Unit about 3V?
NO
Check **Power Supply Circuit**.
YES
Check IC6, IC8 and BBIC of Base Unit.

Cross Reference:
Power Supply Circuit (
)

Note:
BBIC is IC2.

12. CHECK PROCEDURE (BASE UNIT)

12.1. Preparation

12.1.1. Equipment Required

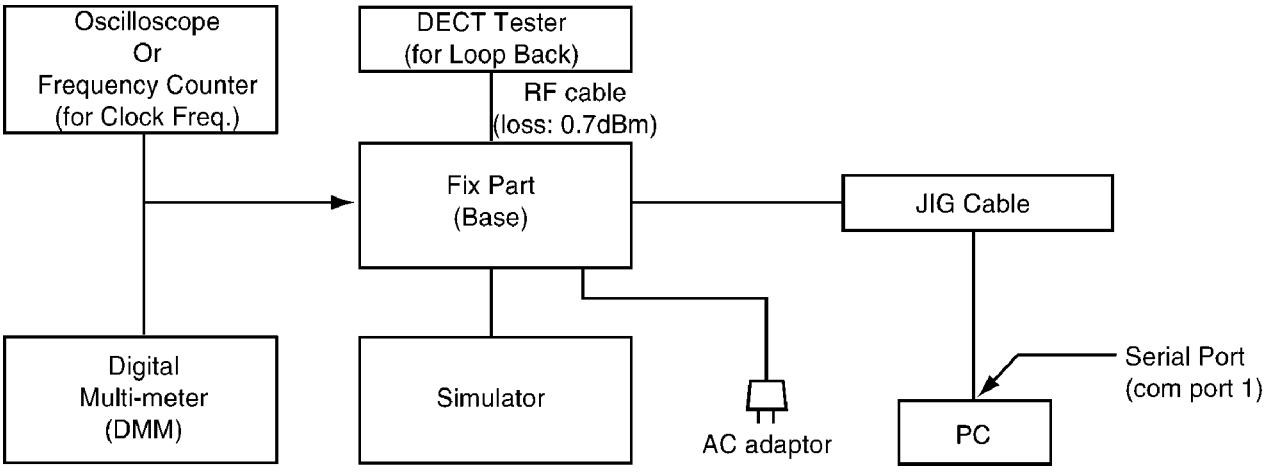
- **DECT tester: Rohde & Schwarz, CMD 60 is recommended.**
- **Frequency counter: it must be precise to be able to measure 1Hz (precision; ± 4ppm).**
  Hewlett Packard, 53131A is recommended.
- **DC power: it must be able to output at least 1A current under 9V.**
- **Digital multi-meter (DMM): it must be able to measure voltage and current.**
- **Oscilloscope**

12.1.2. JIG and PC

- **EEPROM serial JIG**
  JIG Cable: PQZZ1CD505E
- **PC which runs in DOS mode**
- **Batch file for setting: PQZZTCD540NZ**

12.2. PC Setting

12.2.1. Connections



12.2.2. PC Setting

1. Open a window of MS-DOS mode from the start-up menu.
2. Change a directory.
3. Type “SET_COM 1” from the keyboard (when COM port 1 is used for the connection).
4. Type “doskey”.

Note:
See the table below for frequently used commands.

Command name	Function	Example
rdeeprom	Read the data of EEPROM	Type “rdeeprom 00 00 FF”, and the data from address “00 00” to “FF” is read out.
readid	Read ID (RFPI)	Type “readid”, and the registered ID is read out.
writeid	Write ID (RFPI)	Type “writeid 00 18 E0 0E 98”, and the ID “0018 E0 0E 98” is written.
setfreq	adjust Frequency of RFIC	Type “setfreq nn”.
hookoff	off-hook mode on Base	Type “sethooksw 01”.
hookon	on-hook mode on Base	Type “sethooksw 00”.
Getchk	Read checksum	Type “getchk”.
Wreeprom	write eeprom	Type "wreeprom 01 23 45". "01 23" is address and "45" is data to be written.

For Service Hint:
Please make sure the speed of comport is “9600bps“ or less.

13. CHECK PROCEDURE (CORDLESS HANDSET)

13.1. Preparation

13.1.1. Equipment Required

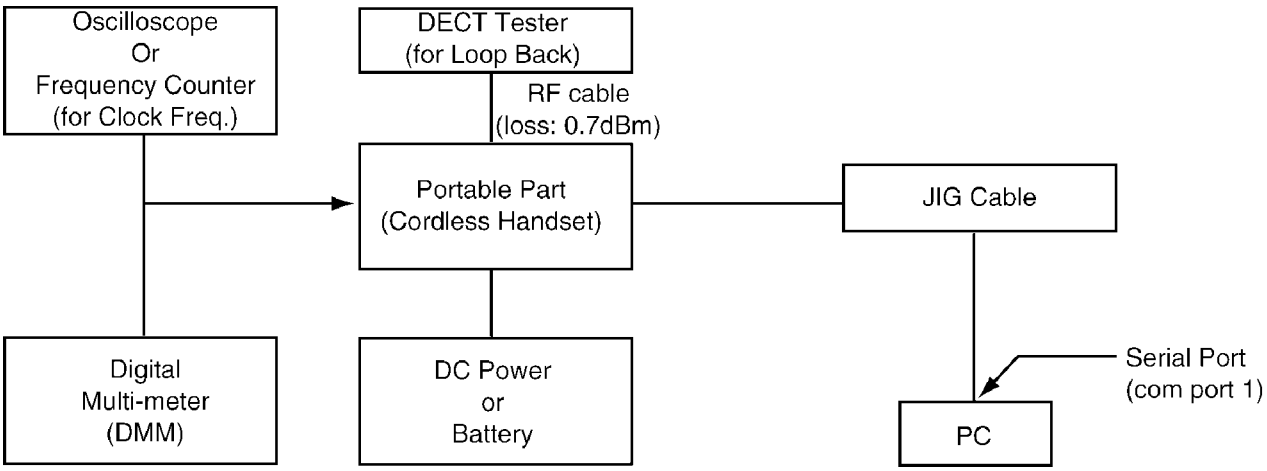
- **DECT tester: Rohde & Schwarz, CMD 60 is recommended.**
- **Frequency counter: it must be precise to be able to measure 1Hz (precision; ± 4ppm).**
  Hewlett Packard, 53131A is recommended.
- **DC power: it must be able to output at least 1A current under 2.4V for Cordless Handset, 9V for JIG.**
- **Digital multi-meter (DMM): it must be able to measure voltage and current.**
- **Oscilloscope**

13.1.2. JIG and PC

- **EEPROM serial JIG**
  JIG Cable: PQZZ1CD505E
- **PC which runs in DOS mode.**
- **Batch file for PC setting: PQZZTCD540NZ**

13.2. PC Setting

13.2.1. Connections



13.2.2. PC Setting

1. Open a window of MS-DOS mode from the start-up menu.

2. Change a directory.

3. Type “SET_COM 1” from the keyboard (when COM port 1 is used for the connection).

4. Type “doskey”.

Note:
See the table below for frequently used commands.

Command name	Function	Example
rdeeprom	Read the data of EEPROM	Type “rdeeprom 00 00 FF”, and the data from address “00 00” to “FF” is read out.
readid	Read ID (RFPI)	Type “readid”, and the registered ID is read out.
writeid	Write ID (RFPI)	Type “writeid 00 18 E0 0E 98”, and the ID “0018 E0 0E 98” is written.
setfreq	adjust Frequency of RFIC	Type “setfreq nn”.
Getchk	Read checksum	Type “getchk”.
Wreeprom	write eeprom	Type "wreeprom 01 23 45". "01 23" is address and "45" is data to be written.

For Service Hint:
Please make sure the speed of comport is “9600bps“ or less.

14. ADJUSTMENTS (BASE UNIT AND CHARGER UNIT)

If your unit have below symptoms, adjust or confirm each item using remedy column from the table.

Symptom	Remedy*
The base unit does not respond to a call from cordless handset.	Make adjustments in item (A)~(H) (J)~(P).
The base unit does not transmit or the transmit frequency is off.	Make adjustments in item (A)~(G) (J)~(P).
The transmit frequency is off.	Make adjustments in item (A)~(G) (J)~(P).
The transmit power output is low, and the operating distance between base unit and cordless handset is less than normal.	Make confirmation in item (J), (M)
The reception sensitivity of base unit is low with noise.	Make confirmation in item (M).
The transmit level is high or low.	Make confirmation in item (Q)~(S)
The reception level is high or low.	Make confirmation in item (Q)~(S)
The unit does not link.	Make adjustments in item (A)~(P).

*** : Refer to Adjustment (Base Unit) ( )**

14.1. Adjustment (Base Unit)

Please follow the items below when BBIC or EEPROM or FLASH ROM are replaced.

	Items	Adjustment Point	Procedure	Check o Replace Parts
(A)	4.0V Supply Confirmation	TP14	1. Confirm that the voltage between TP14 and GND is 4.0V ± 0.2V.	CN2, L8, L D1, C1, C C211, C3(IC1, C11 C3, C306
(B)	4.0V Supply Confirmation	TP3	1. Confirm that the voltage between TP3 and GND is 4.0V ± 0.2V.	CN2, L8 L9, D1, C1, C C211, C3(IC15, C27 C212, C3(C310

	Items	Adjustment Point	Procedure	Check o Replace Parts
(C)	3.2V Supply Confirmation	TP22	1. Confirm that the voltage between TP22 and GND is 3.15V ± 0.2V.	Q2, R12, C C7, C8, R13, R1
(D) *	1.8V Supply Confirmation	TP15	1. Confirm that the voltage between TP15 and GND is 1.8V ± 0.02V. 2. Adjust the 1.8V voltage of TP15 executing the command "bandgap XX" (XX is the value).	Q3, R15 C11 C10
(E) *	BBIC Confirmation	-	1. BBIC Confirmation (Execute the command "getchk"). 2. Confirm the returned checksum value. **Connection of checksum value and program number is shown below.** ex.) checksum value: 9ACF; program number: D34DZC	IC2, X1, C42, C43, C34 C37, C39, C44 C48, C45, R11 C28
(F) *	EEP-ROM Confirmation	-	1. EEP-ROM Confirmation (Execute the command "Chk540NZHv05.bat"). 2. Confirm the returned checksum value (Checksum is 1C0CE).	IC3, C53 R56, R57, IC2
(G) *	BBIC Clock Adjustment	TP49	1. Execute the command "Conttx". 2. Input command "rdeeprom 02 86 01", then you can confirm the current value. 3. Adjust the frequency of TP49 executing the command "setfreq xx (where xx is the value)" so that the reading of the frequency counter is 10.368000MHz ± 10Hz.	IC2, IC4, L C63, X1 C42, C43
(H) *	Hookswitch Check with DC Characteristics	-	1. Connect CN1 (Telephone Socket) to Tel-simulator which is connected with 600 Ω. 2. Set line voltage to 48V at on-hook condition and line current to 40mA at off-hook condition of nomal telephone. 3. Execute the command "sethooksw 01". 4. Confirm that the line current is 40mA ± 5mA. 5. Execute the command "sethooksw 00". 6. Confirm that the line current is 0mA + 0.2mA.	CN1, L6 L7, Q4, R23 R25, Q5, R26 R28 IC2, D3
(I)*	DTMF Generator Confirmation	-	1. Connect CN1 (Telephone Socket) to DTMF tester. 2. Execute the command "sethooksw 01" and "dtmf_Hi". 3. Confirm that the high frequency (1477.06Hz) group is -8 ± 2dBm. 4. Execute the command "dtmf_lo". 5. Confirm that the low frequency (852.05Hz) group is -10 ± 2dBm. 6. Execute the command "dialtone 0".	IC2, R39 C41, R49, C46 C47, R43, R44 R45, R46, R47 R48, C40, C10 C109,C3(R42, Q8 D4, R34

	Items	Adjustment Point	Procedure	Check o Replace Parts
J)*	Transmitted Power Confirmation	-	Remove the Antenna before starting step from 1 to 7. 1. Configure the DECT tester (CMD60) as follows; <Setting> -Test mode: FP -Traffic Carrier: 5 -Traffic Slot: 4 -Mode: Loopback -PMID: 0000 -RF LEVEL = -70dBm. 2. Execute the command "testmode". 3. Execute the command “sendchar dmv 2 2“. 4. Check that “Signalling Status” has been set to “Locked“, then press “ACCEPT RFPI“. 5. Initiate connection from Dect tester (“set up connect“) 6. Execute the command “ant0“. 7. Confirm that the NTP value at ANT is 20dBm ~ 25dBm.	IC2, L1, C C84, C71 C73, C104, C6 C59, C64, C10 C58, C57, C10 C55, C8 C72, R59, R6 R61, R112, R1 R91, R9 L3, DA1 RFM1, C311, C312, C3 C322, C3
K)	Modulatoin Check and Adjustment	ANT	Follow steps 1 to 6 of (J) above. 7.Confirm that the B-Field Modulation is 360kHz/ div ~ 380kHz/div using data type Fig31. 8.Adjust the B-Field Modulation if required. (Execute the command "readmod" and "wrtmod xx", where xx is the value.)	IC2, L1, C C84, C71 C73, C104, C6 C59, C64, C10 C58, C57, C10 C55, C8 C72, R59, R6 R61, R112, R1 R91, R9 L3, DA1 RFM1, C311, C312, C3 C322, C3

	Items	Adjustment Point	Procedure	Check o Replace Parts
(L)	Frequency Offset Confirmation	-	Follow steps 1 to 6 of (J) above. 7.Confirm that the frequency offset is -50kHz ~ + 50kHz.	IC2, L1, C C84, C71 C73, C104, C6 C59, C64, C10 C58, C57, C10 C55, C82 C72, R59, R60 R61, R112, R11 R91, R92 L3, DA1 RFM1, C311, C312, C32 C322, C3
(M)	Sensitivity Receiver Confirmation	-	Follow steps 1 to 6 of (J) above. 7.Set DECT tester power to -88dBm. 8.Confirm that the BER is < 1000ppm.	IC2, L1, C C84, C71 C73, C104, C6 C59, C64, C10 C58, C57, C10 C55, C82 C72, R59, R60 R61, R112, R11 R91, R92 L3, DA1 RFM1, C311, C312, C32 C322, C3

	Items	Adjustment Point	Procedure	Check o Replace Parts
(N)	Timing Confirmation	-	Follow steps 1 to 6 of (J) above. 7.Confirm that the Timing accuracy is -2.0ppm ~ + 2.0ppm.	IC2, L1, C C84, C71 C73, C104, C6 C59, C64, C10 C58, C57, C10 C55, C82 C72, R59, R60 R61, R112, R11 R91, R92 L3, DA1 RFM1, C311, C312, C32 C322, C3
(O) *	RSSI Level Confirmation	-	Follow steps 1 to 6 of (J) above. 7.Execute the command "readrssi". 8. Confirm that the returned value is 11(hex) ~ 25(hex).	IC2, L1, C C84, C71 C73, C104, C6 C59, C64, C10 C58, C57, C10 C55, C82 C72, R59, R60 R61, R112, R11 R91, R92 L3, DA1 RFM1, C311, C312, C32 C322, C3

	Items	Adjustment Point	Procedure	Check o Replace Parts
(P)	Power RAMP Confirmation	-	Follow steps 1 to 6 of (J) above. 7.Confirm that “Power RAMP is Matching“.	IC2, L1, C C84, C71 C73, C104, C6 C59, C64, C10 C58, C57, C10 C55, C82 C72, R59, R60 R61, R112, R11 R91, R92 L3, DA1 RFM1, C311, C312, C32 C322, C3
(Q) *	Audio Check (Cordless Handset)	-	1. Link with Cordless Handset. 2. Input -45dBm/1kHz to Headset MIC of Cordless Handset. Measure the Level at Line I/F and distortion level. 3. Confirm that the level is -10dBm ± 5dB and confirm that the distortion level is < 5% at TEL Line (600 Ω Road). 4. Input -20dBm/1kHz to Line I/F. Measure the level at Headset Receiver of Cordless Handset and distortion level (*Receive volume set to middle). 5. Confirm that the level is -23dBm ± 5dB and confirm that the distortion level is < 5% at Receiver (Volume Middle, 150 Ω Road).	IC2, CN1 SA1, L6, L7, D Q4, Q5, R R25, R26 R28

	Items	Adjustment Point	Procedure	Check o Replace Parts
(R)	Audio Check (Curl Cord Handset)	-	1. Input -45dBm/1kHz to MIC of Curl Cord Handset. Measure the Level at Line I/F and distortion level. 2. Confirm that the level is -15dBm ± 5dB and confirm that the distortion level is < 5% at TEL Line (600 Ω Road). 3. Input -20dBm/1kHz to Line I/F. Measure the level at Receiver of Carl Cord Handset and distortion level (*Receive volume set to middle). 4. Confirm that the level is -24dBm ± 5dB and confirm that the distortion level is < 5% at Receiver (Volume Middle, 150 Ω Road).	IC2, CN1 SA1, L6, L7, D Q4, Q5, R R25, R26 R28 C291, R28 C287, C28 IC15, R28 R284, R28 R286, R28 R288, R28 R290, R29 R292, R23 R279, R26 C288, C29 C267, C27 C232, C23 C292, C29 C296, C30 C302, C30 C305, C30 C300, C29 C298, C29 C314, C31 C316

	Items	Adjustment Point	Procedure	Check o Replace Parts
(S)	SP Phone Audio Check	-	1. Press SP-Phone button. 2. Press MUTE button. 3. Input -20dBm/1kHz/600 Ω to Line I/F. (SP-Phone volume Maximum) 4. Measure the output level at Speaker (between TP108 and TP109). 5. Confirm that the level is -3 ± 5dBm. 6. Press MUTE button. 7. Input -45dBm/1kHz/600 Ω to SP-Phone Mic. (TP60-TP61) 8. Measure the output level at Line I/F. 9. Confirm that the level is 0 ± 5dBm.	IC2, C25 R251, C25 C293, D21 C231, R23 R276, C23 R281, R2(C266, C27 R264, MIC C225, R22 C226, R22 R220, C22 C224, C22 C282, C28 D11, IC1(C221, C22 C271, CN SA1, L6, L D3, Q4, Q R23, R25 R26, R2

Note:
After the measuring, sock up the solder of TP.
*** : PC Setting (**
) is required beforehand.
The connection of adjustment equipment are as shown in Adjustment Standard (Base Unit) (
).

14.2. Adjustment Standard (Base Unit)

When connecting the Simulator Equipments for checking, please refer to below.

14.2.1. Component View

Note:
**(J) - (P) is refered to ADJUSTMENTS (BASE UNIT AND CHARGER UNIT) (
)**

14.2.2. Flow Solder Side View

Note:
**(A) - (S) is refered to ADJUSTMENTS (BASE UNIT AND CHARGER UNIT) (
)**

14.3. Adjustment (Charger Unit)

	Items	Adjustment Point	Procedure	Check c Replac Parts
(A)	Charging Check	-	1. Connect Charge Contact 12 Ω /2W register between charge+ and charge-. 2. Measure and confirm voltage across the regigster is 2.7V ± 0.2V.	D1,R1,F

Note:
After the measuring, sock up the solder of TP.
**The connection of adjustment equipment are as shown in Adjustment Standard (Charger Unit) (
).**

14.4. Adjustment Standard (Charger Unit)

When connecting the Simulator Equipments for checking, please refer to below.

14.4.1. Flow Solder Side View

Note:
(A) is refered to ADJUSTMENTS (BASE UNIT AND CHARGER UNIT) (
)

15. ADJUSTMENTS (CORDLESS HANDSET)

If your unit have below symptoms, adjust or confirm each item using remedy column from the table.

Symptom	Remedy*
The movement of Battery Low indicator is wrong.	Make adjustments in item (A)~(D), (G),).
The cordless handset does not respond to a call from base unit.	Make adjustments in item (A)~(D), (I)~(
The cordless handset does not transmit or the transmit frequency s off.	Make adjustments in item (A)~(D), (I)~((M), (O).
The transmit frequency is off.	Make adjustments in item (A)~(D), (I)~((M), (O).
The transmit power output is low, and the operating distance etween base unit and cordless handset is less than normal.	Make confirmation in item (J), (N).
The reception sensitivity of base unit is low with noise.	Make confirmation in item (N).
oes not link between base unit and cordless handset.	Make adjustments in item (A)~(D), (I)~(
The Audio level is high or low.	Make confirmation in item (R).
The SP-Phone level is high or low.	Make confirmation in item (S).
The cordless Headset level is high or low.	Make confirmation in item (T).

*** : Refer to Adjustment (Cordless Handset) (**
)

15.1. Adjustment (Cordless Handset)

Please follow the items below when BBIC or EEPROM is replaced.

	Items	Adjustment Point	Procedure	Check & Replace Parts
A) *	1.8V Supply Confirmation	TP12	1. Confirm that the voltage between test point "TP12" and GND is 1.8V ± 0.02V. 2. Adjust the 1.8V voltage of TP12 executing command "bandgap XX" (XX is the value).	IC1, Q2 C40, R4
B)	4.0V Supply Confirmation	TP10	1. Confirm that the voltage between "TP10" and GND is 3.85V ± 0.2V.	IC1, F1 C1, C2 C3, C5 C74, R1, R2 R3, Q1 D1, L1, F
C)	2.7V Supply Confirmation	TP11	1. Confirm that the voltage between "TP11" and GND is 2.7V ± 0.1V.	IC1, Q3 C4, C5 R9, R1 R11
D) *	BBIC Confirmation	-	1. BBIC Confirmation (Execute the command "getchk"). 2. Confirm the returned checksum value. **Connection of checksum value and program number is shown below.** ex.) checksum value / program number 2908 / D352ZC ← KX-TCA154AZ only 27B4 / D352ZD 0F24 / D352ZE	IC1, X1,
E)	Charge Control Check & Charge Current Monitor Confirmation	-	1. Apply 6V between J3(+) and J4(-) with current limit of PSU to 200mA. 2. Confirm that the charge current is ON/OFF. 3. SW to decrease current limit of PSU to 100mA. 4. Confirm that the charge current is stable.	IC1, Q4 Q5, Q9 D6, D7, L5, C73, C7 R5, R6, R7 R72, F

	Items	Adjustment Point	Procedure	Check Replac Parts
F) *	Charge Detection (OFF) Confirmation	-	1. Stop supplying 6V to J3(+) and J4(-). 2. Execute the command "charge". 3. Confirm that the returned value is 0x01 (hex).	IC1, Q4 Q5, Q9 D6, D7, L5, C73, C7 R5, R6, R7 R72, F
G) *	Battery Monitor Confirmation & Adjustment	-	1. Apply 2.3V ± 0.005V between BATT(+) and BATT(-). 2. Execute the command "Backloff", then “readbatt“. 3. Confirm: 29 ≦ returned value ≦ 36 (Hex) (If the returned value is within the range, no need to do step 4 and 5.) 4. If the reading is out of range in step 3 above, adjust the battery monitor excuting command “wreeprom 00 01 01 XX”. (XX is the reading at step 3.) Then excute command “wreeprom 00 36 01 YY”. (YY can be confirmed by the following calculation; YY= XX - 0E)	IC1,F1 C74,C2 C3,R81,F R73,C
H)	Battery low Confirmation	-	1. Apply 2.40V between BATT(+) and BATT(-). 2. Confirm that there is no flashing of Battery Icon. 3. Apply 2.20V between BATT(+) and BATT(-). 4. Confirm that there is flashing of Battery Icon.	IC1, F1 C74, C2 C3, R8 R24, R73, C
I)*	BBIC Clock Adjusment	CLK	1. Execute the command "conttx". 2. Input Command “rdeeprom 00 57 01”, then you can confirm the current value. 3. Adjust the frequency of CLK executing the command "setfreq xx (where xx is the value)" so that the reading of the frequency counter is 10.368000MHz ± 10Hz. **Note:** **CLK is displayed only for a few seconds when executing command “conttx“ after the battery is inserted.**	IC1, X1 IC3, C7, L2, C
J) *	Transmitted Power Confirmation	-	**Remove the Antenna before starting step from 1 to 4.** 1. Configure the DECT tester (CMD60) as follows; <Setting> -Test mode: PP -RFPI: 0102030408 -Traffic Carrier: 5 -Traffic Slot: 4 -Mode: Loopback -RF LEVEL = -70dBm 2. Execute the command "regcmd60 01 02 03 04 08". 3. Initiate connection from DECT tester. 4. Confirm that the NTP value at A201 (TP15) is 20dBm ~ 25dBm.	IC1, IC3 L2, C54, C6 C61, C62, C6 C64, C65, C6 C67, C69, C8 C82, C56, R5 R55, R

	Items	Adjustment Point	Procedure	Check Replac Parts
K) *	Modulatoin Check and Adjusment	-	Follow steps 1 to 3 of (J) above. 4.Confirm that the B-Field Modulation is 360kHz/div ~ 380kHz/div using data type Fig 31. 5.Adjust the B-Field Modulation if required. (Execute the command "Readmod" and "wrtmod xx", where xx is the value.)	IC1, IC3 L2, C54, C6 C61, C62, C6 C64, C65, C6 C67, C69, C8 C82, C56, R5 R55, R7
L)	Frequency Offset Confirmation	-	Follow steps 1 to 3 of (J) above. 4.Confirm that the frequency Offset is -50kHz ~ + 50kHz.	IC1, IC3 L2, C54, C6 C61, C62, C6 C64, C65, C6 C67, C69, C8 C82, C56, R5 R55, R7
M)	Frequency Drift Confirmation	-	Follow steps 1 to 3 of (J) above. 4.Confirm that the frequency Drift is < ± 30kHz/ms.	IC1, IC3 L2, C54, C6 C61, C62, C6 C64, C65, C6 C67, C69, C8 C82, C56, R5 R55, R7

	Items	Adjustment Point	Procedure	Check o Replac Parts
N)	Sensitivity Receiver Confirmation	-	Follow steps 1 to 3 of (J) above. 4.Set DECT tester power to -88dBm. 5.Confirm that the BER is < 1000ppm.	IC1, IC3 L2, C54, C6 C61, C62, C6 C64, C65, C6 C67, C69, C8 C82, C56, R5 R55, R7
O)	Timing Confirmation	-	Follow steps 1 to 3 of (J) above. 4.Confirm that the Timing accuracy is < ± 0.5ppm.	IC1, IC3 L2, C54, C6 C61, C62, C6 C64, C65, C6 C67, C69, C8 C82, C56, R5 R55, R7
P) *	RSSI Level Confirmation	-	Follow steps 1 to 3 of (J) above. 4.Set DECT tester power to -81dBm. 5.Execute the command “readrssi“. 6.Confirm that the returned value is 0x09 (hex) ~ 0x19 (hex). 7.Set DECT tester power to -63dBm. 8.Execute the command “readrssi“. 9.Confirm that the returned value is 0x16 (hex) ~ 0x26 (hex).	IC1, IC3 L2, C54, C6 C61, C62, C6 C64, C65, C6 C67, C69, C8 C82, C56, R5 R55, R7

	Items	Adjustment Point	Procedure	Check Replac Parts
Q)	Power RAMP Confirmation	-	Follow steps 1 to 3 of (J) above. 4.Confirm that Power RAMP is matching.	IC1, IC3 L2, C54, C6 C61, C62, C6 C64, C65, C6 C67, C69, C8 C82, C56, R5 R55, R7
R)	Audio Check and confirmation	-	1. Link to BASE which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 40mA. 3. Input -45dBm/1KHz to MIC and measure Line output level. 4. Confirm that the level is -10dBm ± 5dB and confirm that the distortion level is < 5% at TEL Line (600 Ω Road). 5. Input -20dBm/1KHz to Line I/F and measure Receiving level at REV1 and REV2. 6. Confirm that the level is -23dBm ± 5dB and confirm that the distortion level is < 5% at Receiver (Volume Middle, 150 Ω Road).	IC1, IC2 C68, C37, C9 C91, R25, R2 C12, C87, C1 R29, C89, C1 R37, R38, R8 C92, C13, R3 C15, C16, D8 C86, C75, C7 C38, C80, R7 R36

	Items	Adjustment Point	Procedure	Check & Replac Parts
S)	SP phone Audio check and confirmation	-	1. Link to Base which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 40mA. 3. Set the handset off-hook using SP-Phone key. 4. Input -45dBm/1KHz to MIC and measure Line output level. 5. Confirm that the level is -6dBm ± 1.5dB and confirm that the distortion level is < 5% at TEL Line (600 Ω Road). 6. Input -20dBm/1KHz to Line I/F and measure Receiving level at SP1 and SP2. 7. Confirm that the level is -6.5dBm ± 1.5dB and confirm that the distortion level is < 5% at Receiver (Volume Middle, 150 Ω Road).	IC1, IC2 C68, C37, C9 C91, R25, R2 C12, C87, C1 R29, C8 C17, R3 R38, R8 C92, C13, R3 C15, C16, D8 C86, C75, C7 C38, C80, R7 R36
T)	Headset Audio check and confirmation	-	1. Link to BASE which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 40mA. 3. Input -45dBm/1kHz across Mic terminals on headset cable. 4. Confirm that the level is -14dBm ± 1.5dB and confirm that the distortion level is < 5% at TEL Line (600 Ω Road). 5. Input -20dBm/1kHz to Line I/F. 6. Confirm that the level is -25dBm ± 1.5dB and confirm that the distortion level is < 5% at Receiver (Volume Middle, 150 Ω Road). (SP terminals on headset cable is load of 150 Ω)	IC1, IC2 CN4, R50, R7 R75, C42, D4 D5, R29, R2

	Items	Adjustment Point	Procedure	Check Replac Parts
U) *	EEP-ROM confirmation	-	(For KX-TCD540NZ) 1. EEP-ROM Confirmation (Execute the command "Chk154NZRv03.bat"). 2. Confirm the returned check sum Value (check sum is 7986). (For KX-TCA154EX) 1. EEP-ROM Confirmation (Execute the command "Chk154ALRv02.bat"). 2. Confirm the returned check sum Value (check sum is 7989).	IC10, IC R39, R4

Note:
After the measuring, sock up the solder of TP.
*** : PC Setting (**
) is required beforehand.
The connection of adjustment equipment are as shown in Adjustment Standard (Cordless Handset) (
).

15.2. Adjustment Standard (Cordless Handset)

When connecting the Simulator Equipments for checking, please refer to below.

Note:
(A) - (U) is refered to ADJUSTMENTS (CORDLESS HANDSET) (

)

16. RF SPECIFICATION

16.1. Base Unit

Item	Value	Refer to -. *	Remarks
TX Power	20 dBm ~ 25 dBm	Adjustment (Base Unit) (I)	
Modulation	360 kHz/div ~ 380 kHz/div	Adjustment (Base Unit) (J)	Data type: Fig31
Frequency Offset	-50 kHz ~ +50 kHz	Adjustment (Base Unit) (K)	
RX Sensitivity	< 1000 ppm	Adjustment (Base Unit) (M)	
Timing Accuracy	-2.0 ppm ~ +2.0 ppm	Adjustment (Base Unit) (N)	
RSSI Level	0x11 (hex) ~ 0x25 (hex)	Adjustment (Base Unit) (O)	

*** : Refer to Adjustment (Base Unit) (**
)

16.2. Cordless Handset

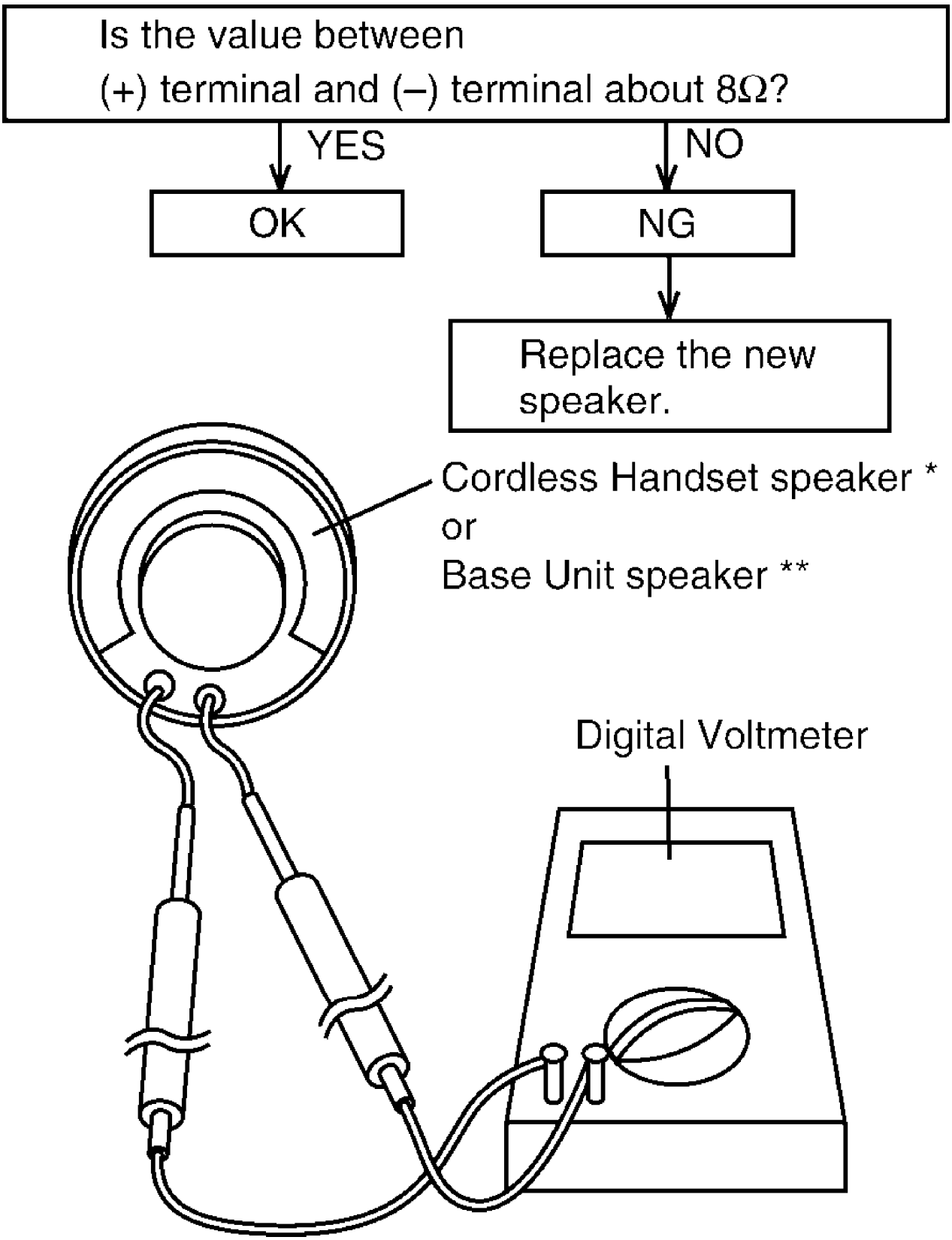
Item	Value	Refer to -. **	Remarks
TX Power	20 dBm ~ 25 dBm	Adjustment (Cordless Handset) (J)	
Modulation	360 kHz/div ~ 380 kHz/div	Adjustment (Cordless Handset) (K)	Data type: Fig31
Frequency Offset	-50 kHz ~ +50 kHz	Adjustment (Cordless Handset) (L)	
Frequency Drift	< ± 30 kHz / ms	Adjustment (Cordless Handset) (M)	
RX Sensitivity	< 1000 ppm	Adjustment (Cordless Handset) (N)	
Timing Accuracy	< ± 0.5 ppm	Adjustment (Cordless Handset) (O)	
RSSI Level	0x09 (hex) ~ 0x19 (hex) (at -81dBm) 0x16 (hex) ~ 0x26 (hex) (at -63dBm)	Adjustment (Cordless Handset) (P)	

Power RAMP	Power RAMP is matching	Adjustment (Cordless Handset) (Q)	

** : Refer to Adjustment (Cordless Handset) (
)

17. HOW TO CHECK THE CORDLESS HANDSET AND BASE UNIT SPEAKER

1. Prepare the digital voltmeter, and set the selector knob to ohm meter.
2. Put the probes at the speaker terminals as shown below.

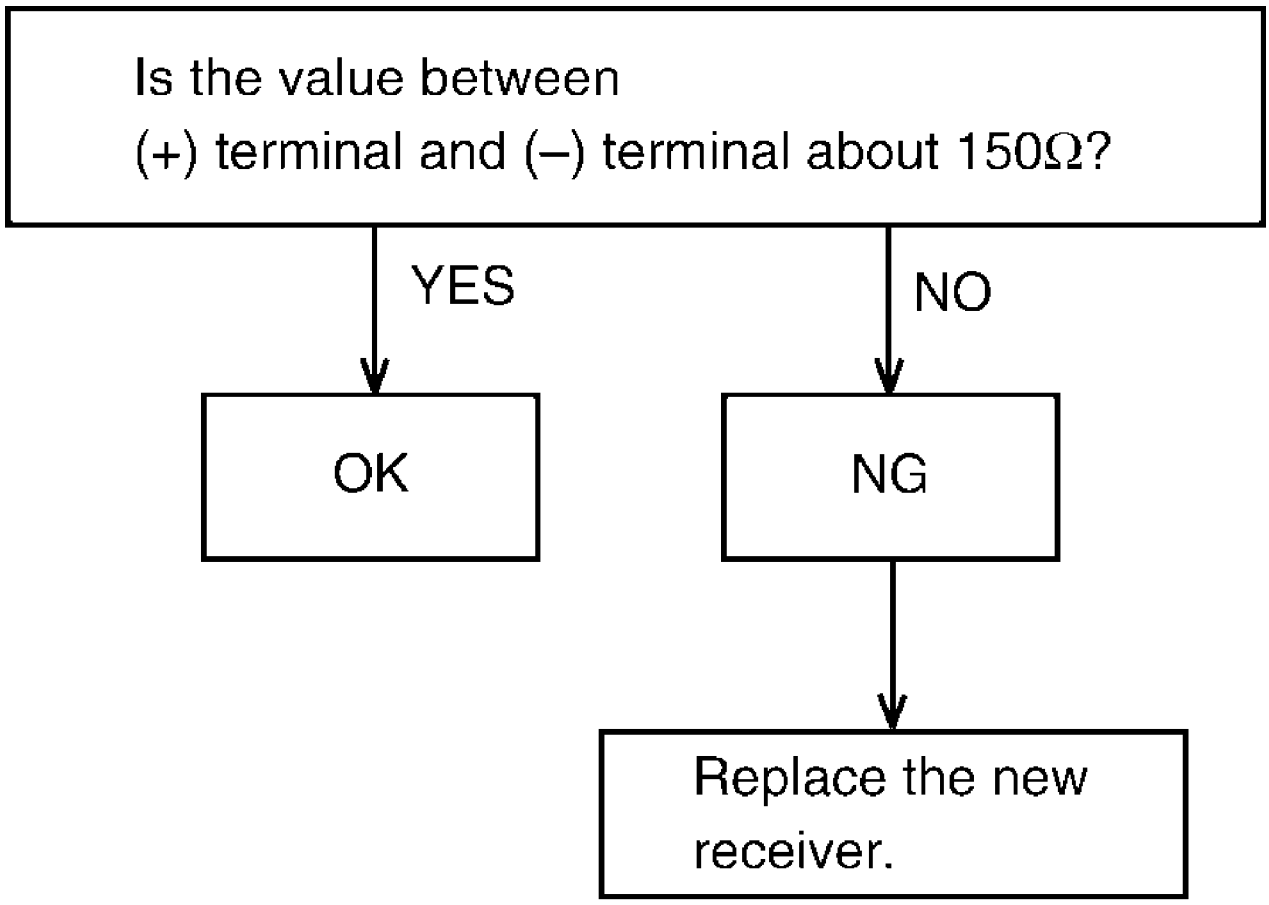

Is the value between
(+) terminal and (–) terminal about 8Ω?
YES
NO
OK
NG
Replace the new speaker.
Cordless Handset speaker *
or
Base Unit speaker **
Digital Voltmeter

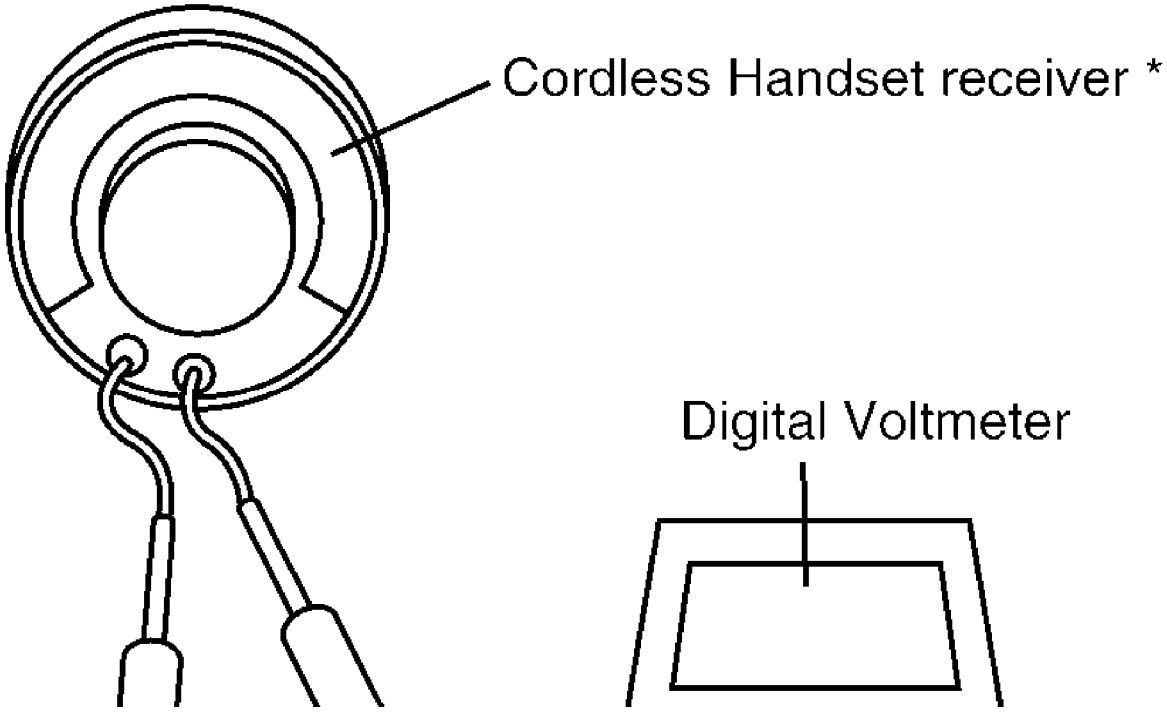
Note:
*** : Refer to Cabinet and Electrical Parts (**
) of Cordless Handset replacement part lists.
**** : Refer to Cabinet and Electrical Parts (**
) of Base Unit replacement part lists.

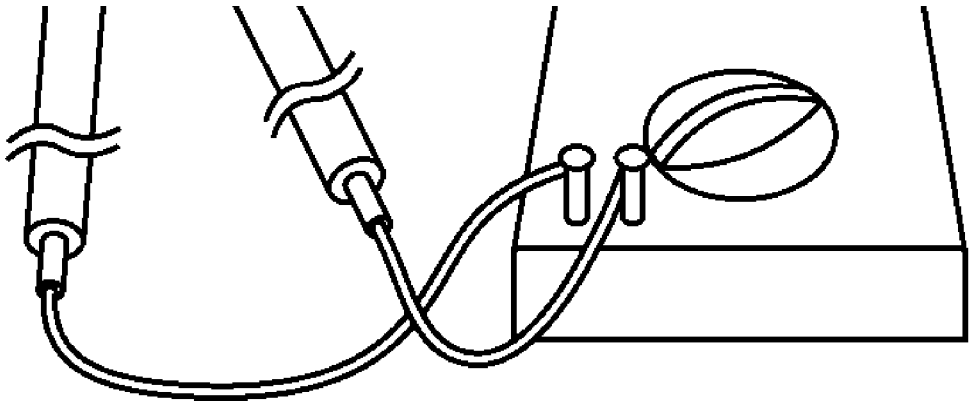
18. HOW TO CHECK THE CORDLESS HANDSET RECEIVER

1. Prepare the digital voltmeter, and set the selector knob to ohm meter.

2. Put the probes at the receiver terminals as shown below.


Is the value between
(+) terminal and (–) terminal about 150Ω?
YES
NO
OK
NG
Replace the new
receiver.


Cordless Handset receiver *
Digital Voltmeter



Note:
*** : Refer to Cabinet and Electrical Parts (**
) of cordless Handset replacement part lists.

19. FREQUENCY TABLE (MHz)

	BASE UNIT		CORDLESS HANDSET	
Channel No	Transmit Frequency	Receive Frequency	Transmit Frequency	Receive Frequency
1	1897.344	1897.344	1897.344	1897.344
2	1895.616	1895.616	1895.616	1895.616
3	1893.888	1893.888	1893.888	1893.888
4	1892.160	1892.160	1892.160	1892.160
5	1890.432	1890.432	1890.432	1890.432
6	1888.704	1888.704	1888.704	1888.704
7	1886.976	1886.976	1886.976	1886.976
8	1885.248	1885.248	1885.248	1885.248
9	1883.520	1883.520	1883.520	1883.520
10	1881.792	1881.792	1881.792	1881.792

Note:
Channel No. 10: In the Test Mode on Base Unit and Cordless Handset.

20. BLOCK DIAGRAM (BASE UNIT)

21. CIRCUIT OPERATION (BASE UNIT)

21.1. Outline

Base Unit consists of the following ICs as shown in BLOCK DIAGRAM (BASE UNIT) ( ).

- **DECT BBIC (Base Band IC): IC2**
- **Handling all the audio, signal and data processing needed in a DECT base unit**
- **Controlling the DECT specific physical layer and radio section (Burst Module C ontroller section)**
- **ADPCM codec filter for speech encoding and speech decoding (DSP section)**
- **Echo-cancellation and Echo-suppression (DSP section)**
- **Any tones (tone, sidetone, ringing tone, etc.) generation (DSP section)**
- **DTMF receiver (DSP section)**
- **Clock Generation for RF Module**
- **ADC, DAC, timer, and power control circuitry**
- **All interfaces (ex: RF module, EEPROM, LED, Analog Front End, etc.)**
- **RF Module: RFM1**
- **PLL Oscillator**
- **Detector**
- **Compress/Expander**
- **First/Second Mixer**
- **Amplifier for transmission and reception**

- **FLASH MEMORY: IC6**
- **Voice Prompt (TAM) D/L (DownLoad) Area**
- **FLASH MEMORY: IC7**
- **Program D/L (DownLoad) Area**
- **EEPROM: IC3**
- **Temporary operating parameters (for RF, etc.)**

**Refer to EEPROM LAYOUT (BASE UNIT) (
).**

- **Additionally,**
- **Power Supply Circuit (+4.0V, +4.0V, +3.2V, +1.8V output)**
- **Crystal Circuit (10.368MHz)**
- **Telephone Line Interface Circuit**
- **SP Phone Circuit**
- **Curl Cord Handset Interface Circuit**

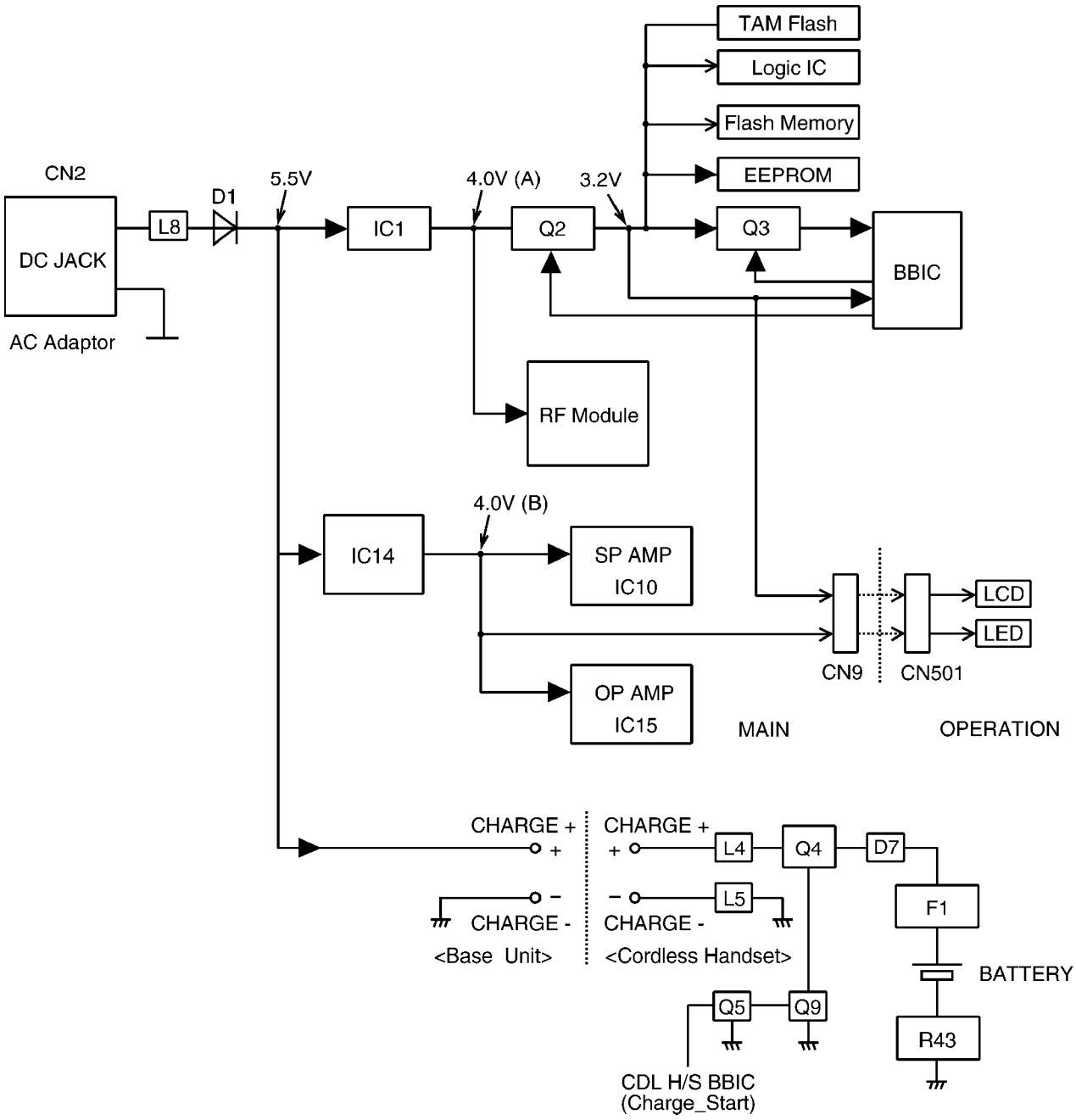
21.2. Power Supply Circuit

The power is supplied to the DECT BBIC, RF Module, EEPROM, SP AMP, LED from AC Adaptor (+6V) as shown in Fig.101. The power supply is as follows;

- **DECT BBIC (IC2): CN2(+6V) → L8 → D1 → IC1 → Q2 → IC2**
- **RF Module (RFM1): CN2(+6V) → L8 → D1 → IC1 → RF Module**
- **EEPROM (IC3): CN2(+6V) → L8 → D1 → IC1 → Q2 → IC3**
- **Flash Memory (IC7): CN2(+6V) → L8 → D1 → IC1 → Q2 → IC7**
- **SP AMP (IC10): CN2(+6V) → L8 → D1 → IC14 → IC10**
- **Logic IC (IC12, IC13): CN2(+6V) → L8 → D1 → IC1 → Q2 → IC12, IC13**

- **LCD (CN502): CN2(+6V) → L8 → D1 → IC1 → Q2 → CN9 → CN501 → CN502(LCD)**
- **LED (LED501, LED502, LED503, LED504, LED505): CN2(+6V) → L8 → D1 → IC14 → CN9 → CN501 → LED**
- **OP AMP (IC15): CN2(+6V) → L8 → D1 → IC14 → IC15**
- **TAM Flash Memory (IC6): CN2(+6V) → L8 → D1 → IC1 → Q2 → IC6**

<Fig.101>



21.3. Telephone Line Interface

<Function>

- **Bell signal detection**
- **Clip signal detection**

- **ON/OFF hook circuit**
- **Audio circuits**

Bell & Clip (: Calling Line Identification Presentation: Caller ID) signal detection:
In the standby mode, Q4 is open to cut the DC loop current and decrease the ring load.
When ring voltage appears at the TP21 (A) and TP19 (B) leads (when the telephone rings), the signal is transferred as follows;

- **A → C13 → R17 → R24 → IC2 Pin 107 (CID IN +)**
- **B → C12 → R16 → R32 → IC2 Pin 112 (CID IN -)**

ON/OFF hook circuit:
In the standby mode, Q4 is open, and connected as to cut the DC loop current and to cut the voice signal. The unit is consequently in an on-hook condition.
When IC2 detects a ring signal or press SP Key or pick up Curl Cord Handset or press the TALK Key onto the handset, Q5 turns on and then Q4 turns on, thus providing an off-hook condition (active DC current flow through the circuit) and the following signal flow is for the loop current.

- **A → D3 → Q4 → R34 → Q8 → R45 → R46 → D3 → B [OFF HOOK]**

21.4. Transmitter/Receiver

Base Unit and Cordless Handset mainly consist of RF Module and DECT BBIC.
Base Unit and Cordless Handset transmit/receive voice signal and data signal through the antenna on carrier frequency.

Signal Pass:
***Refer to SIGNAL ROUTE (**
).

21.4.1. Transmitter Block

**The voice signal input from the TEL LINE interface goes to RF Module (RFM1) through DECT BBIC (IC2) as shown in BLOCK DIAGRAM (BASE UNIT) (
)**
The voice signal passes through the analog part of IC2 where it is amplified and converted to a digital audio stream signal. The burst switch controller processes this stream performing encryption and scrambling, adding the various other fields to produce the GAP (Generic Access Profile) standard DECT frame, assigning to a time slot and channel etc.
In RFM1, the carrier frequency is changing, and frequency modulated RF signal is generated and amplified, and radiated from antenna. Cordless Handset detects the voice signal or data signal in the circuit same as the following explanation of Receiver Block.

21.4.2. Receiver Block

**The signal of 19.2 MHz band (18.81792 MHz ~ 18.97344 MHz) which is input from antenna is input to RFM1 as shown in BLOCK DIAGRAM (BASE UNIT) (
).**
In RFM1, the signal of 19.2 MHz band is downconverted to 864 kHz signal and demoduleted, and goes to IC2 as GAP (Generic Access Profile) standard DECT frames. It passes through the decoding section burst switch controller where it separates out the frame information and performs de-encryption and de-scrambling as required. It then goes to the DSP section where it is turned back into analog audio. This is amplified by the analog front end, and goes to the TEL LINE Interface.

22. BLOCK DIAGRAM (CORDLESS HANDSET)

23. CIRCUIT OPERATION (CORDLESS HANDSET)

23.1. Outline

**Cordless Handset consists of the following ICs as shown in BLOCK DIAGRAM (CORDLESS HANDSET) (
).**

- **DECT BBIC (Base Band IC): IC1**
- **All data signals (forming/analyzing ACK or CMD signal)**
- **All interfaces (ex: Key, Detector Circuit, Charge, DC/DC Converter, EEPROM, LCD)**
- **RF Module: IC3**
- **PLL Oscillator**
- **Detector**
- **Compress/Expander**
- **Amplifier for transmission and reception**
- **AMP: IC2**
- **Single OP_AMP for SP**
- **MIDI (Musical Instrument Digital Interface): IC4**
- **16-Tone 32-Poly PCM Sound Generator**
- **Port (LED direct driver with PWM)**
- **EEPROM: IC10**
- **Temporary operating parameters (for RF, etc.)**

**Refer to EEPROM LAYOUT (CORDLESS HANDSET) (
).**

23.2. Power Supply Circuit/Reset Circuit

Circuit Operation:
When power on the Cordless Handset, the voltage is as follows;
BATTERY(2.2 V ~ 2.6V: J1) → L1, D1, Q2 (1.8V) → Q3 (2.7V) → Q1 (4.0V)
The Reset signal generates IC1 (78) and 1.8V.

23.3. Charge Circuit

Circuit Operation:
When charging the cordless handset on the Base Unit, the charge current is as follows;
DC+(5.5V ~ 6V) → D1 → R4, R5 → CHARGE+(Base) → CHARGE+(Cordless Handset) → L4 → Q4 → D7 → F1 → BATTERY+ ... Battery ... BATTERY- → R43 → GND → CHARGE-(Cordless Handset) → CHARGE-(Base) → GND → DC-(GND)
In this way, the BBIC on Cordless Handset detects the fact that the battery is charged.
The charge current is controlled by switching Q5 of Cordless Handset.
Refer to Fig.101 in Power Supply Circuit (
).

23.4. Battery Low/Power Down Detector

Circuit Operation:
"Battery Low" and "Power Down" are detected by BBIC which check the voltage from battery.
The detected voltage is as follows;

- **Battery Low**

  Battery voltage: V(Batt) ≦ 2.3V ± 50mV

  The BBIC detects this level and " **" starts flashing.**

- **Power Down**

  Battery voltage: V(Batt) ≦ 2.2V ± 50mV
  The BBIC detects this level and power down.

Refer to Adjustment (Cordless Handset) (
).

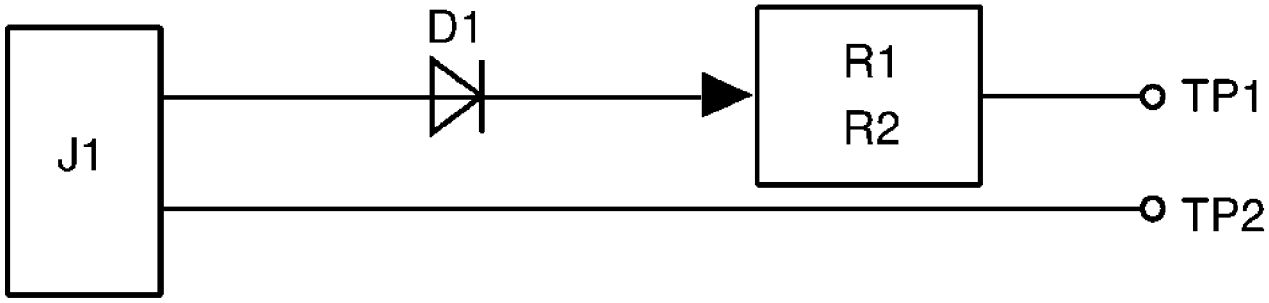
23.5. Speakerphone and Headset Jack

The hands-free loudspeaker at SP+ and SP- is used to generate the ring alarm. IC2 is used to switch off the telephone loudspeaker and is used to amplify the signal to drive the hands-free loudspeaker. They are selected using the SP_AMP line from pin 70 of the BBIC. 2.5mm headset jack is also available.

24. CIRCUIT OPERATION (CHARGER UNIT)

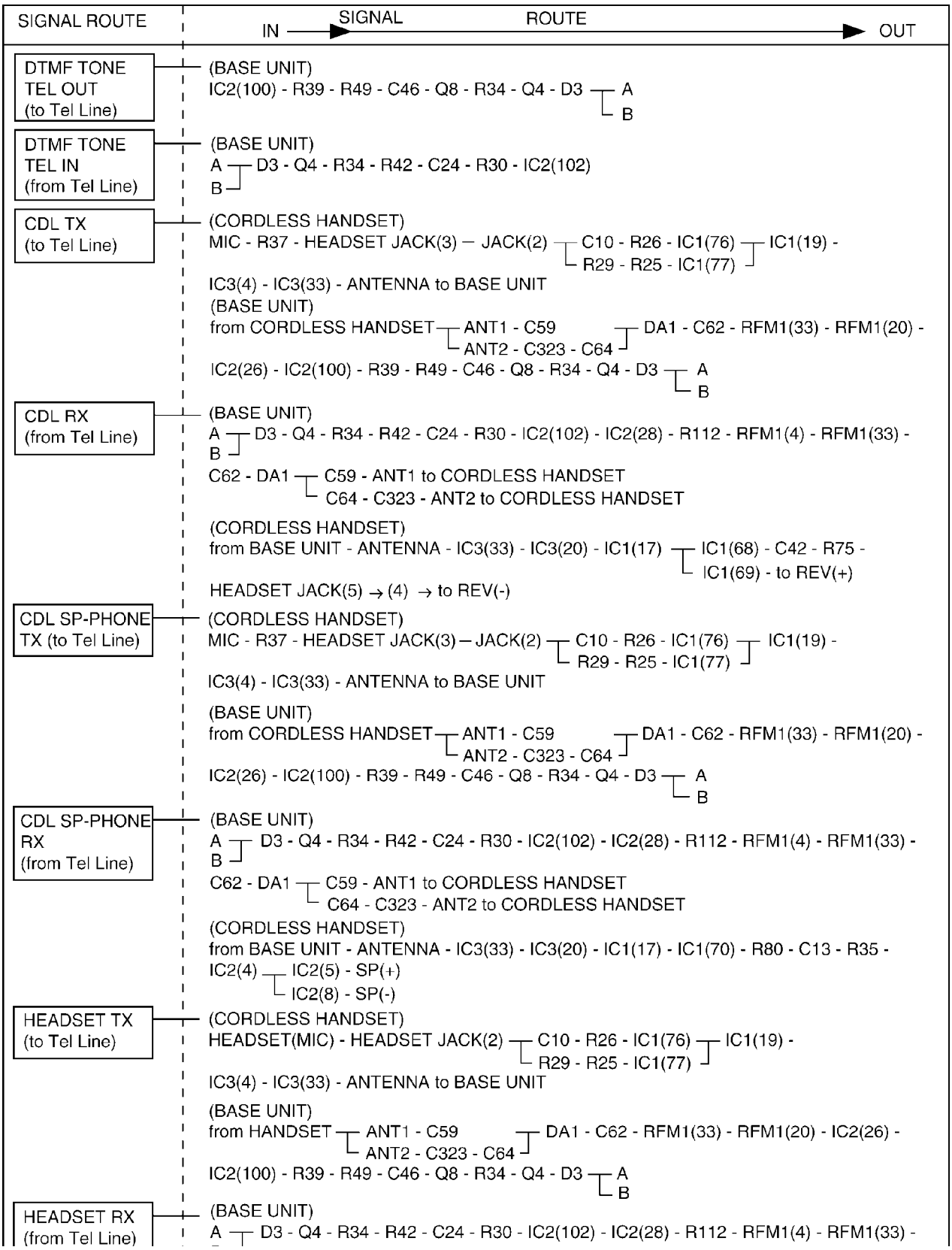
24.1. Power Supply Circuit

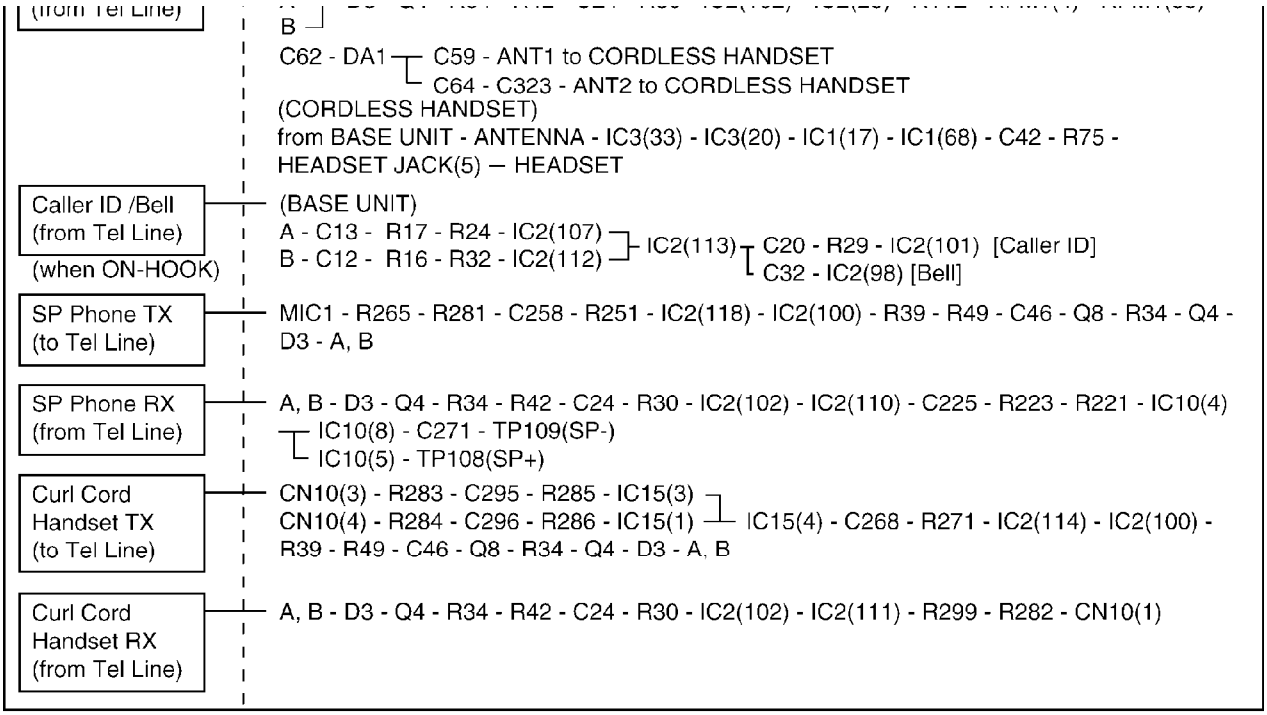
The power supply is as shown.

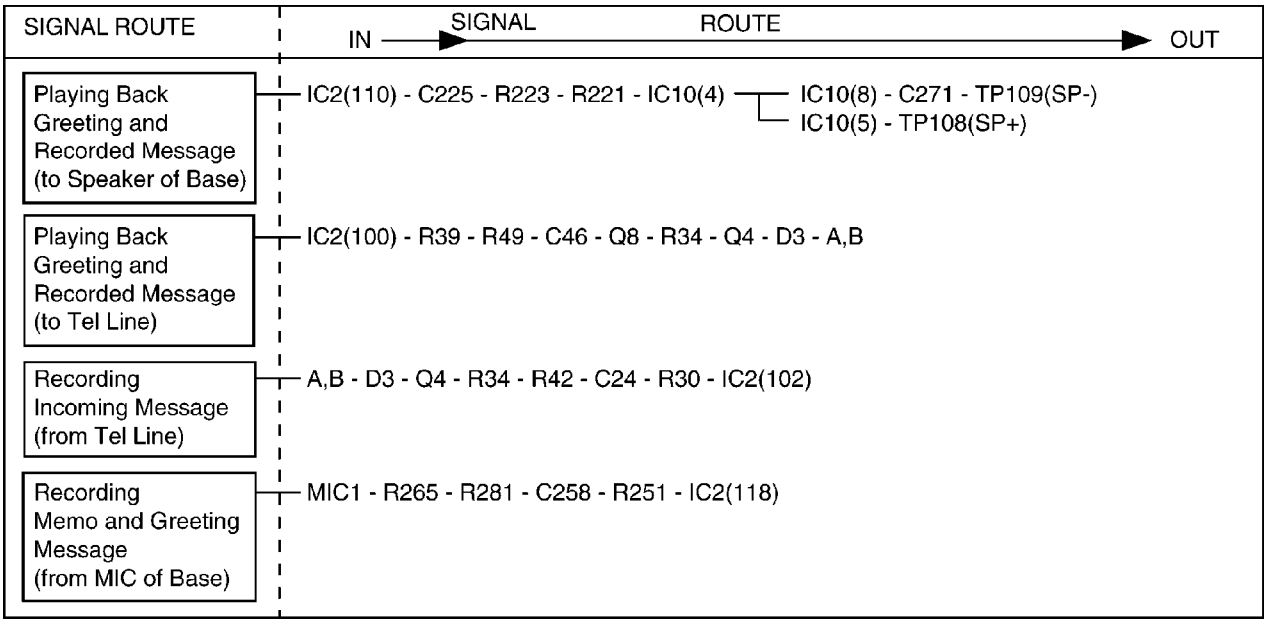


AC Adaptor

25. SIGNAL ROUTE


SIGNAL ROUTE
IN
SIGNAL
ROUTE
OUT
DTMF TONE TEL OUT (to Tel Line)
(BASE UNIT)
IC2(100) - R39 - R49 - C46 - Q8 - R34 - Q4 - D3 - A, B
DTMF TONE TEL IN (from Tel Line)
(BASE UNIT)
A, B - D3 - Q4 - R34 - R42 - C24 - R30 - IC2(102)
CDL TX (to Tel Line)
(CORDLESS HANDSET)
MIC - R37 - HEADSET JACK(3) - JACK(2) - C10 - R26 - IC1(76) - IC1(19) - R29 - R25 - IC1(77)
IC3(4) - IC3(33) - ANTENNA to BASE UNIT
(BASE UNIT)
from CORDLESS HANDSET - ANT1 - C59, ANT2 - C323 - C64 - DA1 - C62 - RFM1(33) - RFM1(20) -
IC2(26) - IC2(100) - R39 - R49 - C46 - Q8 - R34 - Q4 - D3 - A, B
CDL RX (from Tel Line)
(BASE UNIT)
A, B - D3 - Q4 - R34 - R42 - C24 - R30 - IC2(102) - IC2(28) - R112 - RFM1(4) - RFM1(33) -
C62 - DA1 - C59 - ANT1 to CORDLESS HANDSET
C64 - C323 - ANT2 to CORDLESS HANDSET
(CORDLESS HANDSET)
from BASE UNIT - ANTENNA - IC3(33) - IC3(20) - IC1(17) - IC1(68) - C42 - R75 - IC1(69) - to REV(+)
HEADSET JACK(5) → (4) → to REV(-)
CDL SP-PHONE TX (to Tel Line)
(CORDLESS HANDSET)
MIC - R37 - HEADSET JACK(3) - JACK(2) - C10 - R26 - IC1(76) - IC1(19) - R29 - R25 - IC1(77)
IC3(4) - IC3(33) - ANTENNA to BASE UNIT
(BASE UNIT)
from CORDLESS HANDSET - ANT1 - C59, ANT2 - C323 - C64 - DA1 - C62 - RFM1(33) - RFM1(20) -
IC2(26) - IC2(100) - R39 - R49 - C46 - Q8 - R34 - Q4 - D3 - A, B
CDL SP-PHONE RX (from Tel Line)
(BASE UNIT)
A, B - D3 - Q4 - R34 - R42 - C24 - R30 - IC2(102) - IC2(28) - R112 - RFM1(4) - RFM1(33) -
C62 - DA1 - C59 - ANT1 to CORDLESS HANDSET
C64 - C323 - ANT2 to CORDLESS HANDSET
(CORDLESS HANDSET)
from BASE UNIT - ANTENNA - IC3(33) - IC3(20) - IC1(17) - IC1(70) - R80 - C13 - R35 -
IC2(4) - IC2(5) - SP(+)
IC2(8) - SP(-)
HEADSET TX (to Tel Line)
(CORDLESS HANDSET)
HEADSET(MIC) - HEADSET JACK(2) - C10 - R26 - IC1(76) - IC1(19) - R29 - R25 - IC1(77)
IC3(4) - IC3(33) - ANTENNA to BASE UNIT
(BASE UNIT)
from HANDSET - ANT1 - C59, ANT2 - C323 - C64 - DA1 - C62 - RFM1(33) - RFM1(20) - IC2(26) -
IC2(100) - R39 - R49 - C46 - Q8 - R34 - Q4 - D3 - A, B
HEADSET RX (from Tel Line)
(BASE UNIT)
A - D3 - Q4 - R34 - R42 - C24 - R30 - IC2(102) - IC2(28) - R112 - RFM1(4) - RFM1(33) -


(from Tel Line)
B
C62 - DA1
C59 - ANT1 to CORDLESS HANDSET
C64 - C323 - ANT2 to CORDLESS HANDSET
(CORDLESS HANDSET)
from BASE UNIT - ANTENNA - IC3(33) - IC3(20) - IC1(17) - IC1(68) - C42 - R75 -
HEADSET JACK(5) — HEADSET
Caller ID /Bell
(from Tel Line)
(when ON-HOOK)
(BASE UNIT)
A - C13 - R17 - R24 - IC2(107)
B - C12 - R16 - R32 - IC2(112)
IC2(113)
C20 - R29 - IC2(101) [Caller ID]
C32 - IC2(98) [Bell]
SP Phone TX
(to Tel Line)
MIC1 - R265 - R281 - C258 - R251 - IC2(118) - IC2(100) - R39 - R49 - C46 - Q8 - R34 - Q4 -
D3 - A, B
SP Phone RX
(from Tel Line)
A, B - D3 - Q4 - R34 - R42 - C24 - R30 - IC2(102) - IC2(110) - C225 - R223 - R221 - IC10(4)
IC10(8) - C271 - TP109(SP-)
IC10(5) - TP108(SP+)
Curl Cord
Handset TX
(to Tel Line)
CN10(3) - R283 - C295 - R285 - IC15(3)
CN10(4) - R284 - C296 - R286 - IC15(1)
IC15(4) - C268 - R271 - IC2(114) - IC2(100) -
R39 - R49 - C46 - Q8 - R34 - Q4 - D3 - A, B
Curl Cord
Handset RX
(from Tel Line)
A, B - D3 - Q4 - R34 - R42 - C24 - R30 - IC2(102) - IC2(111) - R299 - R282 - CN10(1)



26. CPU DATA (BASE UNIT)

26.1. IC2 (BBIC)

Pin No	Description	I/O	Connection	at Normal mode	at Reset mode
1	VDDIO	-	VDDIO	-	-
2	VSS	-	VSS	-	-
3	AD8	D.O	AD8	O	O-Hi
4	AD9	D.O	AD9	O	O-Hi
5	AD10	D.O	AD10	O	O-Hi
6	AD11	D.O	AD11	O	O-Hi
7	AD12	D.O	AD12	O	O-Hi
8	AD13	D.O	AD13	O	O-Hi
9	AD14	D.O	AD14	O	O-Hi
10	P3[7]/PD7	D.O	P3[7]	O	O-Hi-Z
11	P3[1]/PD1	D.O	P3[1]	O	O-Hi-Z
12	P3[5]/PD5	D.O	ANT1	O	O-Hi-Z
13	P3[4]/PD4	D.O	ANT2	O	O-Hi-Z
14	P3[3]/PD3	D.O	PAON	O	O-Hi-Z
15	P3[2]/PD2	D.O	RXDSG	O	O-Hi-Z
16	VDD	-	VDD	-	-
17	VSS	-	VSS	-	-
18	RFCLK	D.O	RFCLK	O	O-Low
19	VDDRF	-	VDDRF	-	-
20	VSSRF	-	VSSRF	-	-
21	Xtal1	A.I	Xtal1	I	I
22	CAP	A.I	CAP	I	I
23	AVS	-	AVS	-	-
24	AVD	-	AVD	-	-
25	RSSI	A.I	RSSI	I	I
26	RDI	A.I	RXDA	I	I
27	CMPREF	A.I	CMPREF	I	I
28	TDO	A.O	TXDA	O	O-Hi-Z
29	AD15	D.O	AD15	O	O-Hi
30	AD16	D.O	AD16	O	O-Hi
31	AD17	D.O	AD17	O	O-Hi
32	AD18	D.O	AD18	O	O-Hi
33	AD19	D.O	AD19	O	O-Hi
34	AD20	D.O	AD20	O	O-Hi
35	AD21	D.O	AD21	O	O-Hi
36	AD22	D.O	AD22	O	O-Hi
37	AD23	D.O	AD23	O	O-Hi
38	LE	D.O	LE	O	O-Low
39	SO	D.O	SO	O	O-Low
40	SK	D.O	SK	O	O-Hi-Z
41	DAC/ADC2	A.I	ADC2	I	I

Pin No	Description	I/O	Connection	at Normal mode	at Reset mode
42	P3[6]/PD6	D.O	CE	O	O-Hi-Z
43	RDN	D.O	RDN	O	O-Hi
44	WRN	D.O	WRN	O	O-Hi
45	MI/READY	D.O	MI/READY	O	I
46	SCLK	D.O	SCLK	O	O-Hi
47	UTX/P0[0]	D.O	UTX	O	I
48	URX/P0[1]	D.I	URX	I	I
49	JTIO/P0[2]	D.I/O	JTIO	I/O	I
50	PCM_FSC1/P0[3]	D.I	P0[3]	I	I
51	PCM_FSC0/P0[4]	D.I	P0[4]	I	I
52	PCM_CLK/P0[5]	D.I	P0[5]	I	I
53	PCM_DOUT/P0[6]	D.I	P0[6]	I	I
54	PCM_DIN/P0[7]	D.I	P0[7]	I	I
55	VDDIO	-	VDDIO	-	-
56	VSS	-	VSS	-	-
57	INT0n/P1[0]	D.O	ALE	O	I
58	INT1n/P1[1]	D.O	CLE	O	I
59	ACS1/INT2n/P1[2]	D.O	ACS1	O	I
60	ACS0	D.O	ACS0	O	O-Hi
61	ACS2/INT3n/P1[3]	D.O	ACS2	O	I
62	INT4n/P1[4]	D.I	HOOK_SW	I	I
63	INT5n/P1[5]	D.I	R/_B	I	O-Hi
64	BE1n	D.O	BE1n	O	O-Hi
65	BE0n	D.O	BE0n	O	O-Hi
66	SCL2/P3[0]	D.O	SCL2	O	O-Hi-Z
67	SDA2	D.I/O	SDA2	I/O	I
68	DAB0	D.I/O	DAB0	I/O	I
69	DAB8	D.I/O	DAB8	I/O	I
70	DAB1	D.I/O	DAB1	I/O	I
71	DAB9	D.I/O	DAB9	I/O	I
72	DAB2	D.I/O	DAB2	I/O	I
73	DAB10	D.I/O	DAB10	I/O	I
74	DAB3	D.I/O	DAB3	I/O	I
75	DAB11	D.I/O	DAB11	I/O	I
76	VSS	-	VSS	-	-
77	VDD	-	VDD	-	-
78	VDDIO	-	VDDIO	-	-
79	P2[0]/PWM0	D.O	P2[0]	O	I
80	P2[1]/PWM1	D.O	P2[1]	O	I
81	P2[2]/ADC0	A.I	ADC0	I	I
82	P2[3]/ADC1	A.I	ADC1	I	I

Pin No	Description	I/O	Connection	at Normal mode	at Reset mode
83	P2[4]/SCL1	D.O	SCL1	O	I
84	P2[5]/SDA1	D.O	SDA1	O	I
85	DAB4	D.I/O	DAB4	I/O	I
86	DAB12	D.I/O	DAB12	I/O	I
87	DAB5	D.I/O	DAB5	I/O	I
88	DAB13	D.I/O	DAB13	I/O	I
89	DAB6	D.I/O	DAB6	I/O	I
90	DAB14	D.I/O	DAB14	I/O	I
91	DAB7	D.I/O	DAB7	I/O	I
92	DAB15	D.I/O	DAB15	I/O	I
93	TM	D.I	TM	I	O-Low
94	P2[7]/SPIDO	D.O	P2[7]	O	O-Hi-Z
95	P1[6]/PON	A.I	PON	I	I
96	P1[7]/CHARGE	D.I	P1[7]	I	I
97	P2[6]/stop_charge	D.O	P2[6]	O	O-Low
98	VBAT3/RINGING	A.I	RINGING	I	I
99	LINEREF	A.O	LINEREF	O	-
100	LINEOUT	A.O	LINEOUT	O	-
101	LINE_IN+	A.I	LINE_IN+	I	-
102	LINE_IN-	A.I	LINE_IN-	I	-
103	LDO1_Senes	A.I	LDO1_Senes	I	I
104	LDO1_CTRL	A.O	LDO1_CTRL	O	O-Hi
105	LDO2_CTRL	A.O	LDO2_CTRL	O	O-Low
106	VBAT2	A.I	VBAT2	I	I
107	CIDIN+	A.I	CIDIN+	I	I
108	AVS2	-	AVS2	-	-
109	AVD2	-	AVD2	-	-
110	LSR+/REF	A.O	LSR+	O	O
111	LSR-/REF	A.O	LSR-	O	O
112	CIDIN-	A.I	CIDIN-	I	O
113	CIDOUT	A.O	CIDOUT	O	O
114	MIC-	A.I	MIC-	I	I
115	VREF-	A.O	VREF-	O	O
116	VBUF	A.O	VBUF	O	O
117	AGND	A.O	AGND	O	O
118	MIC+	A.I	MIC+	I	I
119	VREF+	A.O	VREF+	O	I
120	RSTn	A.I	RSTn	I	I
121	AD0/EXT_MEMORY	D.I	EXT_MEMORY	I	I
122	AD1	D.O	AD1	O	O-Hi
123	AD2	D.O	AD2	O	O-Hi

Pin No	Description	I/O	Connection	at Normal mode	at Reset mode
124	AD3	D.O	AD3	O	O-Hi
125	AD4	D.O	AD4	O	O-Hi
126	AD5	D.O	AD5	O	O-Hi
127	AD6	D.O	AD6	O	O-Hi
128	AD7	D.O	AD7	O	O-Hi

27. CPU DATA (CORDLESS HANDSET)

27.1. IC1 (BBIC)

Pin No	Description	I/O	Connection	at Normal mode	at Reset mode
1	P3_7/PD7	D,O	LCD_A0	O	O
2	P3_1/PD1	D,O	RXDSG	O	O
3	P3_5/PD5	D,O	SPAMP CD	O	O
4	P3_4/PD4	D,I/O	MIDI ERQ	I	O
5	P3_3/PD3	D,O	PAON	O	O
6	P3_2/PD2	D,O	PSEL	O	O
7	VDD	-	-	-	-
8	VSS	-	-	-	-
9	RFCLK	D,O	SYRI	O	O
10	VDDRF	-	-	-	-
11	VSSRF	-	-	-	-
12	Xtal1	A,I	←	I	O
13	CAP	A,I	←	I	O
14	AVS	-	-	-	-
15	AVD	-	-	-	-
16	RSSI	A,I	RSSI	I	O
17	RDI	D,I	RXDA	I	O
18	CMPREF	A,I	NC	OPEN	O
19	TDO	A,O	TXDA	A,O	O
20	LE	D,O	SYEN	D,O	O
21	SO	D,O	SYDA	D,O	O
22	SK	D,O	SYCL	D,O	O
23	DAC/ADC2	D,I	JACK DETECTION	I	O
24	P3_6/PD6	D,I/O	MIDI_SRQ	I	O
25	UTX/P0_0	D,O	UTX	O	O
26	URX/P0_1	D,I	URX	I	O

Pin No	Description	I/O	Connection	at Normal mode	at Reset mode
27	JTIO/P0_2	D,I	JTAG	I	O
28	PCM_FSC1/P0_3	D,I	COL1	I	O
29	PCM_FSC0/P0_4	D,I	COL2	I	O
30	PCM_CLK/P0_5	D,I	COL3	I	O
31	PCM_DOUT/P0_6	D,I	COL4	I	O
32	PCM_DIN/P0_7	D,I	COL5	I	O
33	VDDIO	-	-	-	-
34	VSS	-	-	-	-
35	INT0n/P1_0	D,O	ROW0	O	O
36	INT1n/P1_1	D,O	ROW1	O	O
37	INT2n/P1_2	D,O	ROW2	O	O
38	INT3n/P1_3	D,O	ROW3	O	O
39	INT4n/P1_4	D,I	MIDI_IRQ	I	O
40	VDDE/INT5n/P1_5	D,O	COL0	O	-
41	SCL2/P3_0	D,O	SCL	O	O
42	SDA2	D,I/O	SDA	I/O	O
43	VSS	-	-	-	-
44	VDD	-	-	-	-
45	P2_0/PWM0	D,O	PWM0	O	O
46	P2_1/PWM1	D,O	CS2	O	O
47	P2_2/ADC0	D,O	EX_RESET	O	O
48	P2_3/ADC1	D,O	MIDI-CS	O	O
49	P2_4/SCL1	D,O	LCD-SCLK MIDI_SCLK	O	O
50	P2_5/SDA1	D,O	LCD-SCLK MIDI_SCLK	O	O
51	P2_7/DC_CTRL	D,O	DC_CTRL	O	O
52	DC_I	A,I	←	I	O
53	P1_6/PON/INT6n	A,I	PON	I	O
54	P1_7/CHARGE/ INT7n	A,I	CHARGE	I	O
55	P2_6/stop_charge	A,O	STOP-CHARGE	O	O
56	VBAT3/RINGING	A,I	VBAT3	I	O
57	DC_stab	A,O	←	O	O
58	DC_Sense	A,I	←	I	O
59	AVS_sense	A,I	←	I	O
60	ADC3	A,I	←	I	O
61	LDO1_sense	A,I	←	I	O
62	LDO1_CTRL	A,O	←	O	O
63	LDO2_CTRL	A,O	←	O	O

Pin No	Description	I/O	Connection	at Normal mode	at Reset mode
64	VBAT2	A,I	←	I	O
65	VBAT1	A,I	←	I	O
66	AVS2	-	-	-	-
67	AVD2	-	-	-	-
68	LSR+/REF	A,O	LSR+	O	O
69	LSR-/REF	A,O	LSR-	O	O
70	LSR_HS/CIDIN-	A,O	LSR_HS	O	O
71	VREF_HS/CIDOUT	A,O	NC	OPEN	-
72	MIC-	A,I	←	I	O
73	VREF-	A,O	←	O	O
74	VBUF	A,O	←	O	O
75	AGND	A,O	←	O	O
76	MIC+	A,I	←	I	O
77	VREF+/CIDIN+	A,O	VREF+	O	O
78	RSTN	D,I	←	I	O
79	VDDIO	-	-	-	-
80	VSS	-	-	-	-

Note:
JACK DETECTION; Detect if a Headset is inserted into the JACK or not. Without a Headset, 1.5V is measured at pin 23, while with a Headset, 0V is measured at pin 23.

28. EEPROM LAYOUT (BASE UNIT)

28.1. Scope

The purpose of this section is to describe the layout of the EEPROM (IC3) for the KX-TCD540 Base Unit.
The EEPROM contains hardware, software, and user specific parameters. Some parameters are set during production of the base e.g. crystal frequency adjustment at address 0286, some are set by the user configuration e.g. ringer volume at address 02C5, and some are set during normal use of the phone e.g. Caller ID data at address 096A..0FDB.

28.2. Introduction

The base unit uses a 128K bit serial EEPROM (IC3) for storing volatile parameters. All parameters are set up before the base leaves the factory. Some of these are vital for the operation of the hardware so a set of default parameters is programmed before the actual hardware fine-tuning can be initiated. This document lists all default settings with a short description.
In the tables below values in a range that are similar are not repeated; i.e. Address 00 to 01 contains the value 00 simply means that the value 00 is repeated in all addresses in the range. All values in this document are in hexadecimal notation.

Initial Type	Description
F	The data initialized by only F command
0	The data initialized by F and 0 command
1	The data initialized by F, 0 and 1 command
2	The data initialized by all command (F,0,1,2)

Country Setting	Description
x	Default - no specific country setting, so revert to default value.

28.3. EEPROM Layout

28.3.1. General Setup1

ddress	Initial Type	Name	Description	Default value	Cou Sett
0	-	EEP_EepromType	EEPROM type 0x00:32kbit type TCD500/510 0x55:64kbit type TCD530/540 0xAA:128kbit type TCD505/515/535/545 other:32kbit type	0x00	0x5
1	F	EEP_ModelInfo	Model information Bit0:TAM 1:Enable 0:Disable Bit1:Base Phonebook 1...1:Enable, 0:Disable Bit2:Audible Call...1:Enable, 0:Disable Bit3:SP-PHONE...1:Enable, 0:Disable Bit4-7:Not used TCD500/505: 0x00 TCD510/515: 0x07 TCD530/535: 0x0A TCD540/545: 0x0F	0x00	0x(
24A	1	EEP_MenusEnabled	Menus Enabled Bit0= Menu of Select Dial Mode 1:Enable 0: Disable Bit1=Flash Type1 Menu...1:Enable, 0:Disable Bit2=Flash Type2 Menu...1:Enable, 0:Disable Bit3=Flash Type3 Menu...1:Enable, 0:Disable Bit4=Menu of Select Pause time...1:Enable, 0: Disable	0x1E	x

28.3.2. General Setup2

ddress	Initial Type	Name	Description	Default value	Cou Sett
280	F	EEP_Rfpi	Base ID written data by adjustment checker or ID writer RFPI (5Byte)	0xFF,0xFF,0xFF, 0xFF,0xFF	x
286	F	EEP_FreqTrim_L	Setting value of FREQ_TRM_RE	0x75	x
287	F	EEP_BandGap	Setting value of BandGap REG	0x08	x
288	F	EEP_Rc0	BMC internal Register 0	0x12	x
29B	1	EEP_RxAtteCrcErrorRsc	Attenuation parameter Crc Error Rsc	0x03	x
398	0	EEP_Ps0_InUseFlag	IN-Use Flag 00:Invalid / 01:Valid	0x00	x
399	0	EEP_Ps0_DectPsNo	DECT PS No. 00-3F:PS No. / FF:Invalid	0xFF	x
39A	0	EEP_Ps0_PsType	PS Type 00:KME's PS (Group Page) 01:KME's PS (Group Page/Message Waiting) 02:TD-7500 or TD-7590 / FF:Another Maker's PS	0xFF	x
39B	0	EEP_Ps0_Ipui	PS ID first byte:0xA8 (Length Infomation) from second byte:IPUI (Normal:5byte Max.13byte)	0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00	x
3E0	0	EEP_Ps1_InUseFlag	IN-Use Flag 00:Invalid / 01:Valid	0x00	x
3E1	0	EEP_Ps1_DectPsNo	DECT PS No. 00-3F:PS No. / FF:Invalid	0xFF	x
3E2	0	EEP_Ps1_PsType	PS Type 00:KME's PS (Group Page) / 01:KME's PS (Group Page/Message Waiting) 02:TD-7500 or TD-7590 / FF:Another Maker’s PS	0xFF	x
3E3	0	EEP_Ps1_Ipui	PS ID IPUI (14Byte)	0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00	x
428	0	EEP_Ps2_InUseFlag	IN-Use Flag 00:Invalid / 01:Valid	0x00	x

ddress	Initial Type	Name	Description	Default value	Cou Sett
429	0	EEP_Ps2_DectPsNo	DECT PS No. 00-3F:PS No. / FF:Invalid	0xFF	x
42A	0	EEP_Ps2_PsType	PS Type 00:KME's PS (Group Page) / 01:KME's PS (Group Page/Message Waiting) 02:TD-7500 or TD-7590 / FF:Another Maker's PS	0xFF	x
42B	0	EEP_Ps2_Ipui	PS ID IPUI (14Byte)	0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00	x
470	0	EEP_Ps3_InUseFlag	IN-Use Flag 00:Invalid / 01:Valid	0x00	x
471	0	EEP_Ps3_DectPsNo	DECT PS No. 00-3F:PS No. / FF:Invalid	0xFF	x
472	0	EEP_Ps3_PsType	PS Type 00:KME's PS (Group Page) / 01:KME's PS (Group Page/Message Waiting) 02:TD-7500 or TD-7590 / FF:Another Maker's PS	0xFF	x
473	0	EEP_Ps3_Ipui	PS ID IPUI (14Byte)	0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00	x
4B8	0	EEP_Ps4_InUseFlag	IN-Use Flag 00:Invalid / 01:Valid	0x00	x
4B9	0	EEP_Ps4_DectPsNo	DECT PS No. 00-3F:PS No. / FF:Invalid	0xFF	x
4BA	0	EEP_Ps4_PsType	PS Type 00:KME's PS (Group Page) / 01:KME's PS (Group Page/Message Waiting 02:TD-7500 or TD-7590 / FF:Another Maker's PS	0xFF	x
4BB	0	EEP_Ps4_Ipui	PS ID IPUI (14Byte)	0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00,0x00, 0x00,0x00	x

ddress	Initial Type	Name	Description	Default value	Cou Sett
500	0	EEP_Ps5_InUseFlag	IN-Use Flag 00:Invalid / 01:Valid	0x00	x
501	0	EEP_Ps5_DectPsNo	DECT PS No. 00-3F:PS No. / FF:Invalid	0xFF	x
502	0	EEP_Ps5_PsType	PS Type 00:KME's PS (Group Page) / 01:KME's PS (Group Page/Message Waiting 02:TD-7500 or TD-7590 / FF:Another Maker's PS	0xFF	x

28.3.3. Flash Time Setting

ddress	Initial Type	Name	Description	Default value	Cour Setti
E	1	FlashTime1	Calibrated loop-break time for short break Unit : 10 ms, defaults to 700 ms	0x46	0x0
F	1	FlashTime2	Calibrated loop-break time for long break Unit : 10 ms, defaults to 80 ms	0x08	0x3
10	1	FlashTime3	Calibrated loop-break time for extra-long break Unit : 10 ms, defaults to 400 ms	0x28	0x1

28.3.4. Clip (Caller ID) configuration

ddress	Initial Type	Name	Description	Default value	Cou Sett
59	1	EEP_ClipDetectConfig	CLIP detect configuration Bit0-2:Mode...0:Learn mode, 1:DTMF only, 2: FSK only, 3:FSK/DTMF both, 4:Russian CLIP only Bit3:Unused3 Bit4:Onhook...1=enable, 0=disable Bit5:Offhook...1=enable, 0=disable Bit6:MsgWaiting...1=enable, 0=disable Bit7:Unused7	0x73	x
5A	1	EEP_ClipRingConfig	Ring configuration Bit0:Rpas...1=enable, 0=disable Bit1:RpasAlert...1=enable, 0=disable Bit2:Rpas2LongAlert...1=enable, 0=disable Bit3:Suppress1stRing...1=enable, 0=disable Bit4-7:Unused	0x00	x
5B	1	EEP_ImpSetConfig	Impedance Set configuration Bit0:Polarity...1=enable, 0=disable Bit1:Dtas...1=enable, 0=disable Bit2:Rpas...1=enable, 0=disable Bit3:PowerRing...1=enable, 0=disable Bit4:LearnImpPattern...1=enable, 0=disable Bit5:CheckPolStatus...1=enable, 0=disable Bit6-7: Unused	0x15	x
5C	1	EEP_ImpRemConfig	Impedance Remove configuration Bit0:Polarity...1=enable, 0=disable Bit1:Ringing...1=enable, 0=disable Bit2:ClipReceived...1=enable, 0=disable Bit3:Offhook...1=enable, 0=disable Bit4:ChszDet...1=enable, 0=disable Bit5-7:Unused	0x0F	x
5D	1	EEP_CasAckDtmf	CAS Acknowledge DTMF tone 00:DTMF 0 - 09:DTMF 9 0A:DTMF A 0B:DTMF B 0C:DTMF C 0D:DTMF D 0E:DTMF * 0F:DTMF #	0x0D	x
5E	1	EEP_DtmfReceiveDataCount	Valid Receive data Count (for INDIA)	0x04	x

ddress	Initial Type	Name	Description	Default value	Cou Sett
5F	1	EEP_ClipPhaseConfig	CLIP phase set configuration Bit0:ForwardNumber...1=enable, 0=disable Bit1:CallingNumber...1=enable, 0=disable Bit2:Dutch...1=enable, 0=disable Bit3:Canadian...1=enable, 0=disable Bit4:KpnVmwi...1=enable, 0=disable Bit5:PriorityCheck...1=enable, 0=disable Bit6-7:AddZero...0:no add zero, 1:add zero absolutely 2:Check Number's top is zero. If it is zero, add zero.	0x04	0x
60	1	EEP_ClipPhaseConfig2	CLIP phase set configuration Bit0:FskRemoveParity...1=enable, 0=disable Bit1:AutoRappel...1=enable, 0=disable Bit2:KpnStartEndNg Bit3-7:Unused	0x01	x
61	1	EEP_AddZeroDataCount	Valid data for Add Zero (for NewZealand)	0x05	0x
62	1	EEP_RingVmwiConfig	CLIP RingVmwi set configuration Bit0:LongBellFuncOff...1=enable, 0=disable Bit1:StatusSucceed...1=enable, 0=disable Bit2-7:Unused	0x01	x
63	1	EEP_RpasMinDuration	RPAS minimum duration Unit : 10ms, Default : 180ms	0x12	x
64	1	EEP_RpasMaxDuration	RPAS maximum duration Unit : 10ms, Default : 320ms	0x20	x
65	1	EEP_DtasMinDuration	DTAS minimum duration Unit : 10ms, Default : 60ms	0x06	x
66	1	EEP_DtasMaxDuration	DTAS maximum duration Unit : 10ms, Default : 130ms	0x0D	x
67	1	EEP_DtasDataTimeout	DTAS to FSK data timeout Unit : 100ms, Default : 1s	0x0A	x
68	1	EEP_ImpSetTimeout	Impedance Set timeout (RPAS for France) Unit : 10ms, Default : 250ms [Standard : 200-350ms]	0x14	x
69	1	EEP_ImpRemRpasTimeout	Impedance Remove timeout (RPAS) Unit : 10ms, Default : 1250ms [Standard : 1450ms (subtract Impedance Set timeout)]	0x7D	x

ddress	Initial Type	Name	Description	Default value	Cou Sett
6A	1	EEP_ImpRemChszTimeout	Impedance Remove timeout (Channel Seizure) Unit : 10ms, Default : 450ms [Standard : 420-570ms]	0x2D	x
6B	1	EEP_ImpRemContTimeout	Impedance Remove timeout Unit : 100ms, Default : 1s	0x0A	x
6C	1	EEP_CasMinDuration	CAS minimum duration Unit : 10ms, Default : 60ms	0x06	x
6D	1	EEP_CasMaxDuration	CAS maximum duration Unit : 10ms, Default : 130ms	0x0D	x
6E	1	EEP_CasAckDelayTimeout	CAS to Acknowledge DTMF Delay Timeout Unit : 1ms, Default : 0ms	0x00	x
6F	1	EEP_CasAckDuration	Acknowledge DTMF tone duration Unit : 1ms, Default : 70ms	0x46	x
70	1	EEP_CasAckDataTimeout	CAS to FSK data timeout Unit : 10ms, Default : 600ms	0x3C	x
71	1	EEP_FskInterdigitTimeout	FSK Interdigit timeout Unit : 10ms, Defalut : 80ms	0x08	x
72	1	EEP_FskMarkoutTimeout	FSK Markout timeout after FSK received Unit : 10ms, Default : 100ms	0x0A	x
73	1	EEP_DtmfMinDuration	DTMF minimum duration Unit : 10ms, Default : 20ms	0x02	x
74	1	EEP_DtmfMaxDuration	DTMF maximum duration Unit : 10ms, Default : disable(0xFF)	0xFF	x
75	1	EEP_DtmfInterdigitTimeout	DTMF Interdigit timeout Unit : 10ms, Default : 500ms	0x32	x
76	1	EEP_DtmfMuteTimeout	Mute timeout when OFFHOOK CLIP received (for DK) Unit : 100ms, Default : 5s	0x32	x
77	1	EEP_DtmfBellWaitTimeout	Bell Wait timeout Unit : 100ms, Default : 10s	0x64	x
78	1	EEP_RingVmwiMinDuration	Bell Ring minimum duration (for KPN VoiceMail) Unit : 1s, Default : 14s	0x0E	x
79	1	EEP_RingVmwiMaxDuration	Bell Ring maximum duration (for KPN VoiceMail) Unit : 1s, Default : 22s	0x16	x

ddress	Initial Type	Name	Description	Default value	Cou Sett
7A	1	EEP_RingPulseMin	Bell Ring on minimum duration (for KPN VoiceMail) Unit : 10ms, Default: 600ms	0x3C	x
7B	1	EEP_VmwiRingInterdigitMax	Bell Ring Interdigit maximum (for KPN VoiceMail) Unit : 100ms, Default: 5000ms	0x32	x
7C	1	EEP_RuDtmfDurationMin	RU_DTMF minimum duration Unit : 10ms, Default : 10ms	0x01	x
7D	1	EEP_RuDtmfDurationMax	RU_DTMF maximaum duration Unit : 10ms, Default : 70ms	0x07	x
7E	1	EEP_RuDtmfDurationOff	RU_DTMF Off duration Unit : 10ms, Default : 50ms	0x05	x
7F	1	EEP_RuConfig	Russian CLIP Configuration Bit0:Unused Bit1:RuClipMode...1=Auto, 0=Manual Bit2:RuClipRbtOnOff...1=on, 0=off Bit3-7:Unused	0x00	x
80	1	EEP_RuClipReqLength	Length of REQ signal Unit : 10ms, Default : 140ms	0x0E	x
81	1	EEP_RuClipDelayBetweenReq	Delay between REQ signal Unit : 10ms, Default : 200ms	0x14	x
82	1	EEP_RuClipBackTraceTimeout	Back Trace Start Timeout Unit : 10ms, Default : 600ms	0x3C	x
83	1	EEP_RuClipRepeatReq	Number of repeat REQ request Sent Default : 3 repeat	0x03	x
84	1	EEP_RuClipDelayBeforeReq	Delay before Send REQ signal Unit : 10ms, Default : 200ms	0x14	x
85	1	EEP_RuRcvDigitBeforeReq	Receive Digit Before REQ Default : 2digit	0x02	x
86	1	EEP_PseudoBellLength	Pseudo Bell Length Unit : 10ms, Default : 800ms	0x50	x
87	1	EEP_PseudoBellInterdigitTimeout	Pseudo Bell Interdigit Timeout Unit : 100ms, Default : 3200ms	0x20	x
88	1	EEP_PseudoBellEndTimeout	Pseudo Bell End Timeout Unit : 1s, Default : 30s	0x1E	x
89	1	EEP_RuClipReqLev	RCID REQ signal Level Default : -4.3dBm	0x00, 0x19	x
272	2	EEP_RuClipOnOff	Russian CLIP On/Off	0x01	x

ddress	Initial Type	Name	Description	Default value	Cou Sett
273	2	EEP_RuClipRingNumBeforeSequence	Number Of Rings Patterns Before Start Sequence Default : 1	0x01	x
274	2	EEP_RuClipDisplayDigit	Number Of digits to be displayed Default:7 digits	0x07	x

29. EEPROM LAYOUT (CORDLESS HANDSET)

29.1. Scope

The purpose of this section is to describe “layout of the EEPROM (IC10) KX-TCA154 Cordless Handset”.
The EEPROM contains hardware, software, and user specific parameters. Some parameters are set during production of the cordless handset e.g. crystal oscillator adjustment at 0057, some are set by the user when configuring the cordless handset e.g. ringer volume at 00A1, and some during normal use of the phone e.g. redial memory at 1EF6..1F77.

29.2. Introduction

The handset uses a 64k bit serial EEPROM (IC10) for storing volatile parameters. All parameters are set up before the cordless handset the factory. Some of these are vital for the operation of the hardware so a set of default parameters is programmed before the actual hardware fine-tuning can be initiated. This document lists all default settings with a short description.
This document lists all default parameters with a short description.
In the tables below values in a range that are similar are not repeated; i.e. Address 00 to 01 contains the value 00 simply means that the value 00 is repeated in all addresses in the range.

Initial Type	Description
F	The data initialized by only F command
0	The data initialized by F and 0 command
1	The data initialized by F, 0 and 1 command
2	The data initialized by all command (F,0,1,2)

Country Setting	Description
x	Default - no specific country setting, so revert to default value.

29.3. EEPROM contents

29.3.1. General Setup

ddress	Initial Type	Name	Description	Default value	Cou Sett
52	F	EEP_Ipei	International Portable Part Equipment Identities. A concatenation of an EMC and a unique 20 bit Serial Number.	0x00,0x00,0x00, 0x00,0x00	x
57	F	EEP_FreqTrim_L	Setting value of FREQ_TRIM_REG	0x75	x
58	F	EEP_BandGap	Setting value of BandGap REG	0x08	x
6B	1	EEP_LowQualityLevel	Signal quality level at which handover is initiated(CRC error count).	0x20	x
74	1	EEP_RxMuteSyncError	Continuous SYNC error times for the Rx Mute(0-0xFF:Error times).	0x0A	0x(
131	0	EEP_HandsetNumber	HandsetNumber each Subscription. (wordx4subs)	0xFF,0xFF,0xFF, 0xFF,0xFF,0xFF, 0xFF,0xFF	x

ddress	Initial Type	Name	Description	Default value	Cou Sett
139	0	EEP_Subscription0	GAP Subscription Data. Storage for 4 subscriptions each with 53bytes. <Subscription> 12E : SUB_boAssignedIPUI 12F : SUB_abIPUI[14] 13D : SUB_abPARK[5] 142 : SUB_abSARI[4] 146 : SUB_bPLI 147 : SUB_bLAL 148 : SUB_abARIplusRPN[5] 14D : SUB_boZAP 14E : SUB_bZAP 14F : SUB_boServiceClass 150 : SUB_bServiceClass 151 : AK_boUAKavailable 152 : AK_boUAKproven 153 : AK_boUAK_or_AC [16]	All 0x00	x
1EBE	2	EEP_HSPinCode	Handset Pin : 4 BCD Digits	0x00, 0x00	x

29.3.2. MMI Setting

ddress	Initial Type	Name	Description	Default value	Cour Setti
82	1	EEP_FactoryLanguageSetting	Selected Language for LCD GERAM:0 ENGLISH:1 SPANISH:2 NORWEGIAN :3 FRENCH:4 ITALIAN:5 DENISH:6 DUTCH:7 SWEDISH:8 FINNISH:9 GREEK:10 TURKISH:11 HUNGARIAN:12 PORTUGUESE:13 RUSSIAN:14 POLISH:15 SLOVAKIAN:16 CZECH:17 CROATIAN:18 CATALAN:19	0x01	x

ddress	Initial Type	Name	Description	Default value	Cour Setti
83	1	EEP_Available_Language	Select Available Language 0:Disable 1:Enable	0xFF,0xBF,0xFF	x
1EEF	2	EEP_Language	User_Setting Language GERAM:0 ENGLISH:1 SPANISH:2 NORWEGIAN :3 FRENCH:4 ITALIAN:5 DENISH:6 DUTCH:7 SWEDISH:8 FINNISH:9 GREEK:10 TURKISH:11 HUNGARIAN:12 PORTUGUESE:13 RUSSIAN:14 POLISH:15 SLOVAKIAN:16 CZECH:17 CROATIAN:18 CATALAN:19	0x01	x
1EF0	2	EEP_SmsEatoniLanguage	Eatoni Setting Language GERAM:0 ENGLISH:1 SPANISH:2 NORWEGIAN :3 FRENCH:4 ITALIAN:5 DENISH:6 DUTCH:7 SWEDISH:8 FINNISH:9 GREEK:10 TURKISH:11 HUNGARIAN:12 PORTUGUESE:13 RUSSIAN:14 POLISH:15 SLOVAKIAN:16 CZECH:17 CROATIAN:18 CATALAN:19	0x01	x
1FED	1	EEP_CountryFunction	Country parameter 0bit: Reset Ear-SP Vol. after Talk...0: Hold, 1: Disable 1bit: PBX Phone-Book...0: Hold, 1: Disable 2-7bit: Reserve	0x02	x

29.3.3. MMI1 Setting

ddress	Initial Type	Name	Description	Default value	Cou Sett
2	1	EEP_DspSdt2Level	DSP Parameter SideTone2 Main:SideTone2 Main route level MictoRcv:SideTone2 Mlc to Receiver level	0xFF,0x7F,0x00, 0x18	x
6	1	EEP_DspToneLevel	DSP Parameter ToneLevel Talk:Tone Level in Talk mode Spp:Tone Level in Spp mode	0xFF,0x7F,0xFF, 0x7F	x
A	1	EEP_DspRxMuteLevel	DSP Parameter RxMute Level Talk:RxMute Level in Talk mode Spp:RxMute Level in Spp mode	0xFF,0x7F,0xFF, 0x7F	x
E	1	EEP_DspRcvVol	DSP Parameter Receiver Volume TX Level TxTalk:Receiver Volume Tx Level in Talk mode TxSpp:Receiver Volume Tx Level in Spp mode	0xFF,0x7F,0xFF, 0x7F	x
39	1	EEP_LcdContrast	LCD contrast	0x1E	x
4B	1	EEP_CountryFunction01	Country parameter 01 (→ “parameter01”) Bit0: Call waiting Tone on/off ...1:on, 0:off Bit1-7: Reserve	0x01	0x(
4D	2	EEP_EEToneConfig	Tone Option Data Bit 0:Keytone on/off00 - 0000 = Off / 0001 = Tone On Bit 1:Keytone on/off01 - Reserve Bit 2:Keytone on/off02 - Reserve Bit 3:Keytone on/off03 - Reserve Bit 4:Call waiting on/off - 1/0 Bit 5:Range alarm on/off - 1/0 Bit 6:Battery low alarm on/off - 1/0	0x51	x

29.3.4. Battery Paramters

ddress	Initial Type	Name	Description	Default value	Cou Setti
1	F	EEP_LowVoltage	Number of ADC step for battery low	0x30	x
36	F	EEP_NoVoltage	Number of ADC step for batter empty	0x22	x

30. HOW TO REPLACE FLAT PACKAGE IC

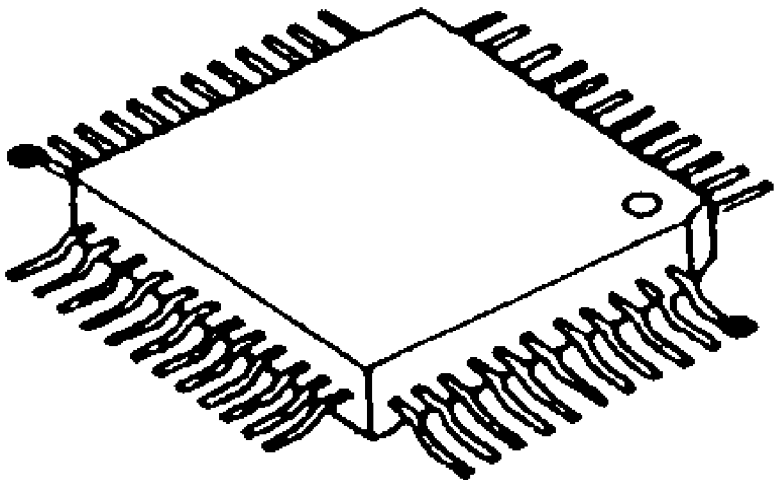
30.1. Preparation

- **PbF (: Pb free) Solder**
- **Soldering Iron**
  Tip Temperature of 700°F ± 20°F (370°C ± 10°C)
  Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.
- **Flux**
  Recommended Flux: Specific Gravity → 0.82.
  Type → RMA (lower residue, non-cleaning type)

Note: See ABOUT LEAD FREE SOLDER (PbF: Pb free) (
).

30.2. Procedure

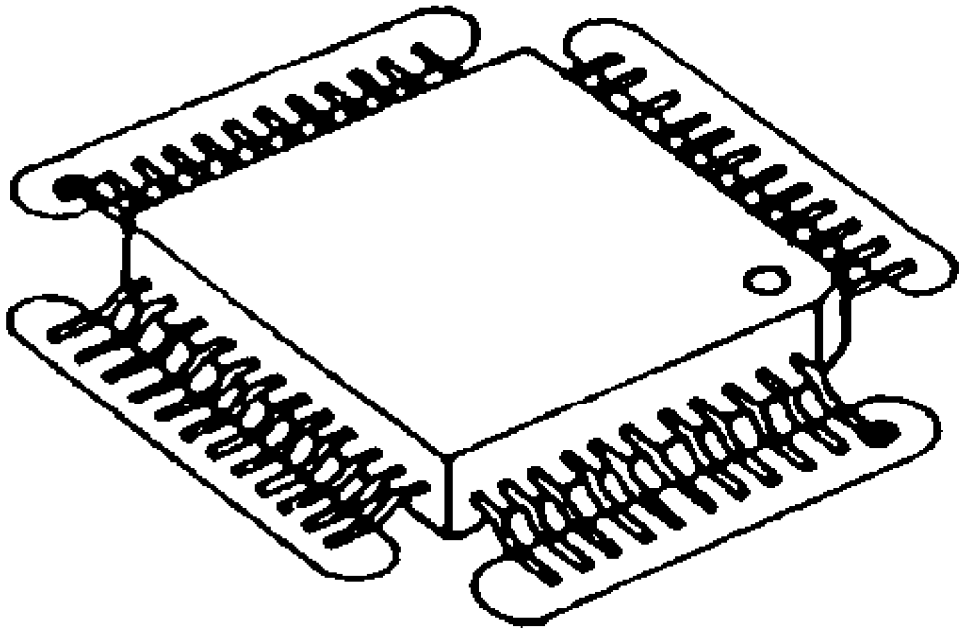
1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.

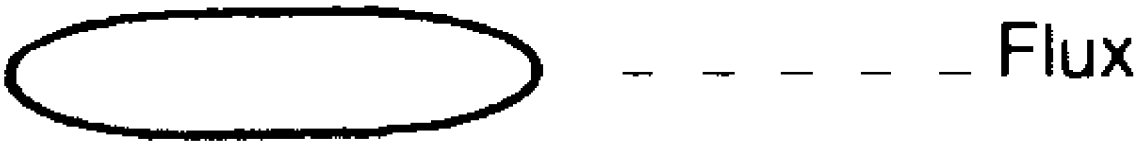


● – – – – – –Temporary soldering point.

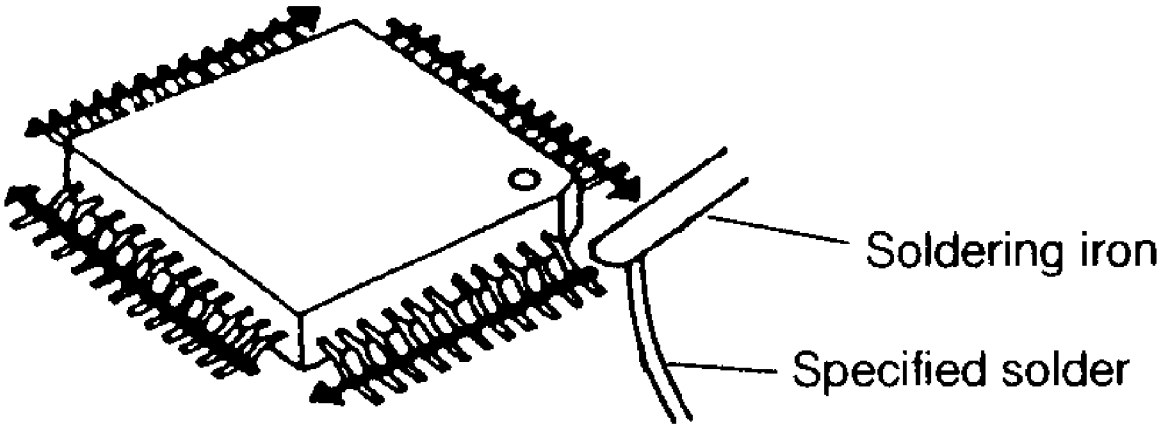
Be certain each pin is located over the correct pad on the PCB.

2. Apply flux to all of the pins on the IC.





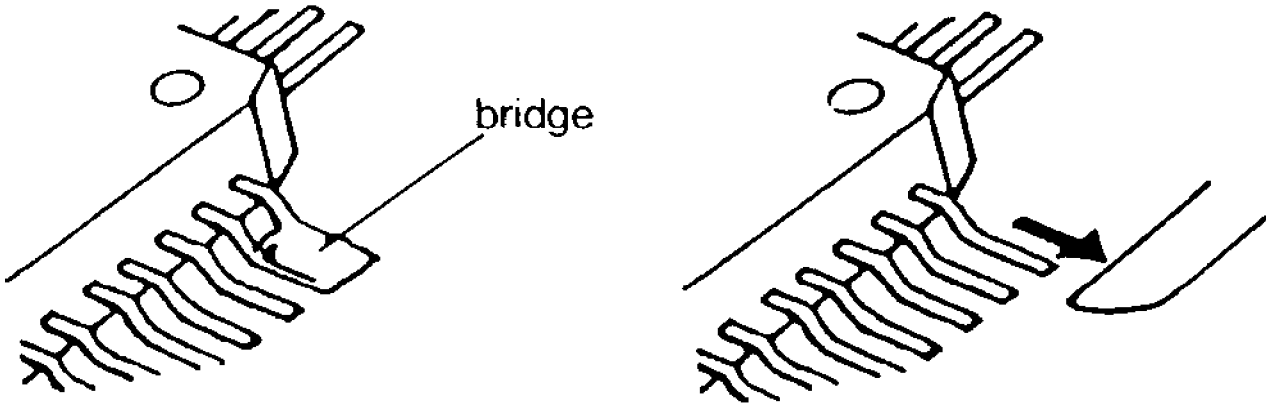
3. Being careful to not unsolder the tack points, slide the soldering iron along the tips of the pins while feeding enough solder to the tip so that it flows under the pins as they are heated.



30.3. Modification Procedure of Bridge

1. Add a small amount of solder to the bridged pins.

2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.



31. CABINET AND ELECTRICAL PARTS LOCATION (BASE UNIT)

32. CABINET AND ELECTRICAL PARTS LOCATION (CORDLESS HANDSET)

33. CABINET AND ELECTRICAL PARTS LOCATION (CHARGER UNIT)

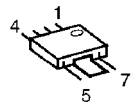
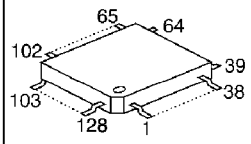
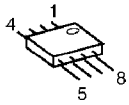
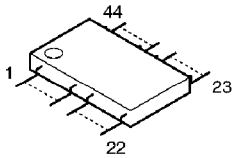
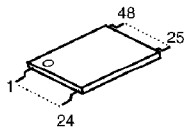
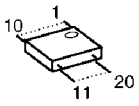
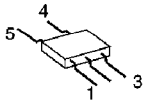
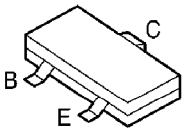
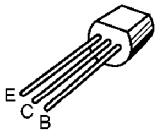
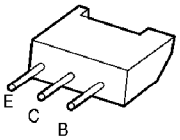
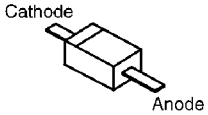
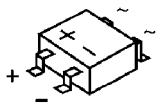
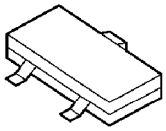
34. ACCESSORIES AND PACKING MATERIALS

34.1. KX-TCD540NZM

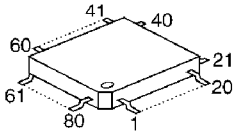
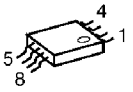
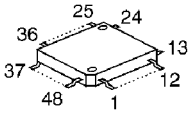
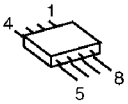
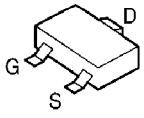
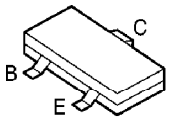
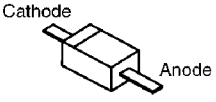
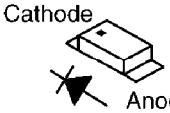
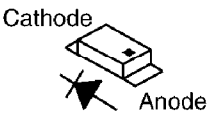
34.2. KX-TCA154AZM

35. TERMINAL GUIDE OF THE ICs, TRANSISTORS AND DIODES

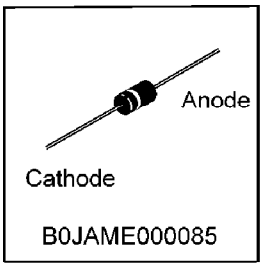
35.1. Base Unit

 C0DBZGE00007	 C1CB00001613	 PQWI1D540NZH C0JBAE000255 C1BB00000265	 PQWI2D540NZH	 PQWI3D540NZH
 C0JBAF000223	 C0ABAA000055	 B1ADGE000004 PQVTBF822T7 B1ABGE000006	 2SA1625	 2SD1994A
 B0JCME000035 MA1Z300 MA8047 B0JCDD000002 MA111 B0BC2R1A0006	 PQVDS1ZB60F1	 B0DDCM000001		

35.2. Cordless Handset

 C1CB00001607	 C1BB00000265	 C1BB00000783	 C0JBAB000371 PQWI1D540NZR PQWI1D154AZR	 PQVTFDN335N
 B1ADGE000004, B1ABCF000103, PQVT143XK146, UN9219J, PSVTDTC143X		 B0JCME000035 MA8047 B0BC2R1A0006 MA2Z72000 B0JCDD000002	 B3AEB0000029 LNJ308G8JRA	 PQVDBR1111C

35.3. Charger Unit



36. REPLACEMENT PARTS LIST

1. RTL (Retention Time Limited)

Note:
The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

2. Important safety notice
Components identified by the ⚠ mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture's parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.

4. ISO code (Example: ABS-94HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.

5. RESISTORS & CAPACITORS
Unless otherwise specified;
All resistors are in ohms (Ω) K=1000 Ω , M=1000k Ω
All capacitors are in MICRO FARADS (μ F)P= μ μ F
***Type & Wattage of Resistor**

Type

ERC:Solid ERDS:Carbon ERJ:Chip	ERX:Metal Film ERG:Metal Oxide ER0:Metal Film	PQ4R:Chip ERS:Fusible Resistor ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

*Type & Voltage Of Capacitor

Type

ECFD:Semi-Conductor ECQS:Styrol ECUV,PQCUV,ECUE:Chip ECQMS:Mica	ECCD,ECKD,ECBT,F1K,ECUV:Ceramic ECQE,ECQV,ECQG:Polyester ECEA,ECST,EEE:Electlytic ECQP:Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H:50V 2A:100V 2E:250V 2H:500V	05:50V 1:100V 2:200V	0F:3.15V 1A:10V 1V:35V 0J:6.3V	0J :6.3V 1A :10V 1C :16V 1E,25:25V	1V :35V 50,1H:50V 1J :16V 2A :100V

36.1. Base Unit

36.1.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
1	PQGB10019Z1	BADGE, PANASONIC	
2	PQGG10179Z1	GRILLE, LCD	ABS-HB
3	PQGG10177Z1	GRILLE	ABS-HB
4	PQGP10246Z	OPTIC CONDUCTIVE PARTS, LED LENS	ABS-HB
5	PQKE10070Z7	GUIDE, H/S HOLDER	ABS-HB
6	PQBH10041Z1	PUSH BUTTON, HOOK	ABS-HB
7	PQKM10612Z1	CABINET BODY	ABS-HB
8	PQAS57P03Y	SPEAKER	
9	PQSX10249Z	KEYBOARD SWITCH, 12KEY	
10	PQBC10393Z1	PUSH BUTTON, NAVI	ABS-HB
11	PQSX10250Z	KEYBOARD SWITCH, NAVI KEY	
12	PQGP10245Z1	PANEL, LCD	AS-HB
13	L5DCBFD00002	LIQUID CRYSTAL DISPLAY	
14	PQHS10601Z	TAPE, CUT OFF LIGHT	
15	PQHX11209Z	SPACER, LCD COVER SHEET	
16	PQHR11010Z	SPACER, LCD PLATE	PMMA-HB
17	PQHS10557Z	SPACER	
18	PQHR11009Z	GUIDE, LCD PLATE	ABS-HB
19	PQJE10114Z	LEAD WIRE, FFC	
20	PQSA10141Z	ANTENNA, MAIN	
21	PQSA10142Z	ANTENNA, SUB	
22	PQHE10150Z	SPACER, CUSHION URETHAN	
23	PQMG10025Z	RUBBER PARTS, MIC	
24	PQYF10580Z1	CABINET COVER	PS-HB
25	PQGT16485Z	NAME PLATE	
26	PQKL10059Z1	STAND, WALL MOUNT ADAPTOR	ABS-HB
27	PQBC10394Z1	PUSH BUTTON, PLAY	AS-HB
28	PQBC10395Z1	PUSH BUTTON, STOP	AS-HB
29	PQBC10396Z1	PUSH BUTTON, ANSWER ON/OFF	AS-HB
30	PQHX11252Z	SPACER, KEY DIFFUSION SHEET	
31	PQSX10251Z	KEYBOARD SWITCH, REC KEY	

36.1.2. Main P.C.Board Parts

Note:

(*1) When replacing IC3 or IC7, data need to be written to them with PQZZTCD540NZ.

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PQWP1D540NZH	MAIN P.C.BOARD ASS'Y (RTL)	
		(ICs)	
IC1	C0DBZGE00007	IC	
IC2	C1CB00001613	IC	
IC3	PQWI1D540NZH	IC (*1)	
IC6	PQWI2D540NZH	IC	
IC7	PQWI3D540NZH	IC (*1)	
IC8	C0JBAE000255	IC	
IC10	C1BB00000265	IC	
IC12	C0JBAF000223	IC	
IC13	C0JBAF000223	IC	
IC14	C0DBZGE00007	IC	
IC15	C0ABAA000055	IC	
		(TRANSISTORS)	
Q2	B1ADGE000004	TRANSISTOR(SI)	
Q3	B1ADGE000004	TRANSISTOR(SI)	
Q4	2SA1625	TRANSISTOR(SI)	S
Q5	PQVTBF822T7	TRANSISTOR(SI)	
Q8	2SD1994A	TRANSISTOR(SI)	
Q13	B1ABGE000006	TRANSISTOR(SI)	
		(DIODES)	
D1	B0JCME000035	DIODE(SI)	
D3	PQVDS1ZB60F1	DIODE(SI)	S
D4	MA1Z300	DIODE(SI)	S
D7	MA8047	DIODE(SI)	S
D8	MA8047	DIODE(SI)	S
D9	MA8047	DIODE(SI)	S
D11	B0JCDD000002	DIODE(SI)	
D200	MA111	DIODE(SI)	S
D201	MA111	DIODE(SI)	S
D202	MA111	DIODE(SI)	S
D203	MA111	DIODE(SI)	S
D204	MA111	DIODE(SI)	S
D205	MA111	DIODE(SI)	S
D208	B0BC2R1A0006	DIODE(SI)	
D209	B0BC2R1A0006	DIODE(SI)	
D212	B0BC2R1A0006	DIODE(SI)	
D213	B0BC2R1A0006	DIODE(SI)	
D214	B0BC2R1A0006	DIODE(SI)	
D215	MA8047	DIODE(SI)	S
D216	MA8047	DIODE(SI)	S
DA1	B0DDCM000001	DIODE(SI)	
		(COILS)	
L1	PQLQR4D4R7K	COIL	
L6	PQLQXF330K	COIL	S
L7	PQLQXF330K	COIL	S
C62	PQLQR2M1N8S	COIL	S
C311	PQLQR2M33NK	COIL	
C320	PQLQR2M1N8S	COIL	S
C322	PQLQR2M1N8S	COIL	S

Ref. No.	Part No.	Part Name & Description	Remarks
		(JACKS & CONNECTOR)	
CN1	PQJJ1T023Y	JACK, MODULAR	S
CN2	PQJJ1T022Z	JACK	
CN9	K1MN24B00077	CONNECTOR	
CN10	PQJJ1T030Y	JACK, HANDSET	
		(COMPONENTS PARTS)	
RA1	PFXBV8V101JV	RESISTOR ARRAY	S
RA2	PFXBV8V101JV	RESISTOR ARRAY	S
RA3	PFXBV8V101JV	RESISTOR ARRAY	S
RA4	PFXBV8V101JV	RESISTOR ARRAY	S
RA5	PFXBV8V101JV	RESISTOR ARRAY	S
		(RESISTORS)	
R10	ERJ3GEYJ473	47K	
R12	ERJ3GEYJ562	5.6K	
R13	ERJ3GEYF562	5.6K	
R14	ERJ3GEYF222	2.2K	
R15	ERJ3GEYJ153	15K	
R16	ERJ3GEYJ223	22K	
R17	ERJ3GEYJ223	22K	
R22	ERJ3GEYJ562	5.6K	
R23	ERJ3GEYJ104	100K	
R24	ERJ3GEYJ101	100	
R25	PQ4R18XJ272	2.7K	S
R26	ERJ3GEYJ103	10K	
R27	ERJ3GEYJ562	5.6K	
R28	ERJ3GEYJ222	2.2K	
R29	ERJ3GEYJ101	100	
R30	ERJ3GEYJ101	100	
R32	ERJ3GEYJ101	100	
R34	PQ4R18XJ000	0	S
R38	ERJ3GEYJ104	100K	
R39	ERJ3GEYJ560	56	
R42	ERJ3GEYJ273	27K	
R43	ERJ3GEYJ822	8.2K	
R44	ERJ3GEYJ182	1.8K	
R45	ERJ12YJ120	12	
R46	ERJ12YJ270	27	
R47	ERJ3GEYJ104	100K	
R48	ERJ3GEYJ473	47K	
R49	ERJ3GEYJ560	56	
R51	ERJ3GEYJ103	10K	
R52	ERJ3GEYJ181	180	
R53	ERJ3GEY0R00	0	
R54	ERJ3GEYJ821	820	
R55	ERJ3GEYJ102	1K	
R56	ERJ3GEYJ103	10K	
R57	ERJ3GEYJ103	10K	
R59	ERJ3GEYJ103	10K	
R60	ERJ3GEYJ220	22	
R61	ERJ3GEYJ220	22	

Ref. No.	Part No.	Part Name & Description	Remarks
R64	ERJ3GEYJ102	1K	
R67	ERJ3GEYJ565	5.6M	
R68	ERJ3GEYJ565	5.6M	
R69	ERJ3GEYJ104	100K	
R70	ERJ3GEYJ104	100K	
R71	ERJ3GEYJ104	100K	
R72	ERJ3GEYJ474	470K	
R73	ERJ3GEYJ121	120	
R74	ERJ3GEYJ121	120	
R75	ERJ3GEY0R00	0	
R78	ERJ3GEYJ103	10K	
R79	ERJ3GEY0R00	0	
R84	ERJ3GEYJ102	1K	
R85	ERJ3GEY0R00	0	
R86	ERJ3GEYJ103	10K	
R87	ERJ3GEYJ103	10K	
R88	ERJ3GEYJ103	10K	
R91	ERJ3GEYJ181	180	
R92	ERJ3GEYJ181	180	
R106	ERJ3GEYJ273	27K	
R107	ERJ3GEYJ273	27K	
R108	ERJ3GEYJ103	10K	
R109	ERJ3GEYJ103	10K	
R111	ERJ3GEYJ103	10K	
R112	ERJ3GEYJ220	22	
R113	ERJ3GEYJ223	22K	
R220	ERJ3GEYJ124	120K	
R221	ERJ3GEYJ101	100	
R223	ERJ3GEYJ393	39K	
R230	ERJ3GEYJ222	2.2K	
R231	ERJ3GEYJ222	2.2K	
R251	ERJ3GEYJ101	100	
R259	ERJ3GEYJ123	12K	
R260	ERJ3GEYJ123	12K	
R261	ERJ3GEYJ123	12K	
R262	ERJ3GEYJ123	12K	
R263	ERJ3GEYJ123	12K	
R264	ERJ3GEYJ330	33	
R265	ERJ3GEYJ330	33	
R266	ERJ3GEYJ222	2.2K	
R271	ERJ3GEYJ101	100	
R272	ERJ3GEYJ103	10K	
R276	ERJ3GEYJ331	330	
R278	ERJ3GEYJ2R2	2.2	
R279	ERJ3GEYJ331	330	
R280	ERJ3GEYJ2R2	2.2	
R281	ERJ3GEY0R00	0	
R282	ERJ3GEYJ330	33	
R283	ERJ3GEYJ102	1K	
R284	ERJ3GEYJ102	1K	

Ref. No.	Part No.	Part Name & Description	Remarks
R285	ERJ3GEYJ103	10K	
R286	ERJ3GEYJ103	10K	
R287	ERJ3GEYJ104	100K	
R288	ERJ3GEYJ104	100K	
R289	ERJ3GEYJ220	22	
R290	ERJ3GEYJ183	18K	
R291	ERJ3GEYJ223	22K	
R292	ERJ3GEY0R00	0	
R294	ERJ3GEYJ101	100	
R295	ERJ3GEYJ103	10K	
R296	ERJ3GEY0R00	0	
R297	ERJ3GEY0R00	0	
R299	ERJ3GEYJ330	33	
R300	ERJ3GEY0R00	0	
R301	ERJ3GEY0R00	0	
C323	ERJ3GEY0R00	0	
L8	PQ4R10XJ000	0	S
L9	PQ4R10XJ000	0	S
		(CAPACITORS)	
C1	ECUV1H100DCV	10P	
C2	ECA1CM221	220P	
C3	ECEA1AKA101	100	
C6	ECUV1H100DCV	10P	
C7	ECEA0JKS101	100	
C8	ECUV1H040CCV	4P	
C10	ECUV1H100DCV	10P	
C11	ECEA0JKS101	100	
C12	ECQE2223KF	0.022	
C13	ECQE2223KF	0.022	
C14	ECKD2H681KB	680P	S
C15	ECKD2H681KB	680P	S
C17	ECUV1H561KBV	560P	
C20	ECUV1C104KBV	0.1	
C21	ECUV1H100DCV	10P	
C22	ECUV1H561KBV	560P	
C23	ECUV1H100DCV	10P	
C24	ECUV1C104KBV	0.1	
C26	ECUV1H100DCV	10P	
C27	ECUV1H100DCV	10P	
C28	ECUV1C224KBV	0.22	
C32	ECUV1C223KBV	0.022	
C33	ECUV1A105KBV	1	
C34	ECUV1C104KBV	0.1	
C36	ECUV1H472KBV	0.0047	S
C37	ECUV1C104KBV	0.1	
C38	ECUV1C823KBV	0.082	
C39	ECUV1C104KBV	0.1	
C40	PQCUV1A225KB	2.2	
C41	PQCUV1C224KB	0.22	
C42	ECUV1H300JCV	30P	

Ref. No.	Part No.	Part Name & Description	Remarks
C43	ECUV1H120JCV	12P	
C44	ECUV1C104KBV	0.1	
C45	ECUV1C104KBV	0.1	
C46	PQCUV1A105KB	1	
C47	PQCUV1C224KB	0.22	
C48	ECUV1C104KBV	0.1	
C49	ECEA1HKS100	10	S
C50	PQCUV1C154KB	0.15	
C53	ECUV1C104KBV	0.1	
C55	ECUV1H100DCV	10P	
C57	ECUV1H100DCV	10P	
C58	ECUV1H100DCV	10P	
C59	ECUV1H020CCV	2P	
C63	ECUV1H330JCV	33P	
C64	ECUV1H060DCV	6P	S
C65	ECUV1C104KBV	0.1	
C66	ECUV1C104KBV	0.1	
C67	ECUV1C104KBV	0.1	
C68	ECUV1A105KBV	1	
C71	ECUV1H020CCV	2P	
C72	ECUV1H821JCV	820P	
C73	ECUV1A475KB	4.7	
C74	ECUV1H121JCV	120P	
C75	ECUV1H121JCV	120P	
C76	ECUV1H103KBV	0.01	
C82	ECUV1H020CCV	2P	
C84	ECUV1H020CCV	2P	
C100	ECUV1H100DCV	10P	
C101	ECUV1H682KBV	0.0068	S
C102	ECUV1H682KBV	0.0068	S
C103	ECUV1C104KBV	0.1	
C104	ECUV1H060DCV	6P	S
C105	ECUV1H100DCV	10P	
C108	PQCUV1A225KB	2.2	
C109	PQCUV1A105KB	1	
C110	ECUV1H103KBV	0.01	
C114	ECUV1H100DCV	10P	
C119	ECUV1C683KBV	0.068	
C210	ECUV1C104KBV	0.1	
C211	ECUV1C104KBV	0.1	
C212	ECEA1AKA101	100	
C220	ECUV1H100DCV	10P	
C221	ECUV1C104KBV	0.1	
C223	ECJ1VB1H221K	220P	
C224	ECUV1H220JCV	22P	
C225	ECUV1C104KBV	0.1	
C226	ECUV1H100DCV	10P	
C227	ECUV1C105ZFV	1	
C230	ECEA1CK101	100	S
C231	ECUV1H100DCV	10P	

Ref. No.	Part No.	Part Name & Description	Remarks
C232	ECEA1CK101	100	S
C233	ECUV1H100DCV	10P	
C240	ECUV1C104KBV	0.1	
C241	ECUV1C104KBV	0.1	
C254	ECUV1C683KBV	0.068	
C255	ECUV1H331JCV	330P	S
C258	ECUV1C104KBV	0.1	
C266	ECUV1H100DCV	10P	
C267	ECUV1H100DCV	10P	
C268	ECUV1C104KBV	0.1	
C269	ECUV1H331JCV	330P	S
C270	ECUV1C104KBV	0.1	
C271	ECEA1AKA221	220	
C272	ECKD2H681KB	680P	S
C273	ECUV1H100DCV	10P	
C274	ECUV1H100DCV	10P	
C275	ECUV1H100DCV	10P	
C276	ECUV1A105KBV	1	
C282	ECUV1C105ZFV	1	
C283	ECUV1C105ZFV	1	
C285	ECUV1H121JCV	120P	
C286	ECUV1H121JCV	120P	
C287	ECUV1H821KBV	820P	
C288	ECUV1H821KBV	820P	
C289	ECUV1H821KBV	820P	
C290	ECUV1H821KBV	820P	
C291	ECUV1H821KBV	820P	
C292	ECUV1H821KBV	820P	
C293	ECUV1H821KBV	820P	
C294	ECUV1H100DCV	10P	
C295	ECUV1C104KBV	0.1	
C296	ECUV1C104KBV	0.1	
C297	ECUV1C104KBV	0.1	
C298	ECUV1H100DCV	10P	
C299	ECST0JY106	10	
C300	ECUV1H681JCV	680P	S
C301	ECUV1H101JCV	100P	
C302	ECUV1H101JCV	100P	
C303	ECUV1H101JCV	100P	
C304	ECUV1H100DCV	10P	
C305	ECUV1C104KBV	0.1	
C306	ECUV1H471JCV	470P	S
C308	ECUV1H471JCV	470P	S
C309	ECUV1H100DCV	10P	
C310	ECUV1H100DCV	10P	
C312	ECUV1H010CCV	1P	
C313	ECUV1H100DCV	10P	
C314	ECUV1H100DCV	10P	
C315	ECUV1H100DCV	10P	
C316	ECUV1H100DCV	10P	

Ref. No.	Part No.	Part Name & Description	Remarks
C317	ECUV1H100DCV	10P	
C325	PQCUV1H100DC	10P	
R102	ECUV1H121JCV	120P	
R110	ECUV1H121JCV	120P	
		(OTHERS)	
MIC1	L0CBAB000052	MICROPHONE	
RFM1	J3FKK0000003	RF UNIT	
SA1	PQVDDSS301L	VARISTOR (SURGE ABSORBER)	S
X1	H0D103500003	CRYSTAL OSCILLATOR	

36.1.3. Operational P.C. Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PQWP2D545EH	OPERAT10NAL P.C.BOARD ASS'Y (RTL)	
		(TRANSISTORS)	
Q501	PQVTDTC143XU	TRANSISTOR(SI)	S
Q502	PQVTDTC143XU	TRANSISTOR(SI)	S
Q503	PQVTDTC143XU	TRANSISTOR(SI)	S
Q504	PQVTDTC143XU	TRANSISTOR(SI)	S
		(DIODES)	
LED501	PQVDBR1111C	DIODE(SI)	S
LED502	PQVDBR1111C	DIODE(SI)	S
LED503	LNJ408K84RAK	DIODE(SI)	
LED504	LNJ408K84RAK	DIODE(SI)	
LED505	LNJ308G8JRA	DIODE(SI)	
		(CONNECTORS)	
CN501	K1MN24B00072	CONNECTOR	
CN502	K1MN22B00047	CONNECTOR	
		(RESISTORS)	
R501	PQ4R10XJ221	220	S
R502	PQ4R10XJ221	220	S
R503	PQ4R10XJ151	150	S
R504	PQ4R10XJ151	150	S
R505	PQ4R10XJ121	120	S
R507	ERJ3GEYJ103	10K	
		(CAPACITORS)	
C501	ECUV1C474KBV	0.47	
C502	ECUV1C474KBV	0.47	
C503	ECUV1C474KBV	0.47	
C504	ECUV1C474KBV	0.47	
C505	ECUV1C474KBV	0.47	
C506	ECUV1A105KBV	1	
C507	ECUV1A105KBV	1	
C508	ECUV1A105KBV	1	
C509	ECUV1A105KBV	1	
C510	ECUV1A105KBV	1	
		(OTHERS)	
SW531	PQSH2B105Z	PUSH SWITCH	S

36.2. Cordless Handset

36.2.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
101	PQGG10159Z1	GRILLE, LCD	ABS-HB
102	PQGP10230Z1	PANEL, KEY	ABS-HB
103	PQGP10231Z	PANEL, LCD	PC-HB
104	PQHS10567Z	TAPE, DOUBLE SIDE (LCD)	
105	PQHS10568Z	TAPE, DOUBLE SIDE (KEY)	
106	PQKM10595Z1	CABINET BODY	ABS-HB
107	PQGP10232Z	OPTIC CONDUCTIVE PARTS, LED LENS	ABS-HB
108	PQHE10141Z	SPACER, LCD SPONGE	
109	PQBX10369Z1	PUSH BUTTON, TALK	ABS-HB
110	PQBC10380Z1	PUSH BUTTON, SP PHONE	ABS-HB
111	PQSX10226Z	KEYBOARD SWITCH	
112	PQHS10467Z	COVER, SP NET	
113	L0AD02A00015	SPEAKER	
114	PQBC10381Z1	PUSH BUTTON, CURSOL	ABS-HB
115	PQSA10134Z	ANTENNA	
116	PQHX11202Z	INSULATOR, SHEET	
117	PQJT10204Z	TERMINAL (L)	
118	PQJT10205Z	TERMINAL (R)	
119	PQHR10964Z	GUIDE, SPEAKER	ABS-HB
120	L0AD02A00010	SPEAKER	
121	PQHG10666Z	SPACER, SP RUBBER SHEET	
122	PQHS10457Z	COVER, SP NET	
123	PQJC10056Z	BATTERY TERMINAL C	
124	PQJC10057Z	BATTERY TERMINAL A	
125	PQJC10058Z	BATTERY TERMINAL B	
126	PQKE10357Z1	COVER, EARPHONE	
127	PQKF10583Y6	CABINET COVER	ABS-HB
128	PQGT16488Z	NAME PLATE	
129	PQHX11245Z	PLASTIC PARTS, BATTERY COVER SHEET	
130	PQHS10561Y	SPACER, BATTERY COVER	
131	PQKK10134Y6	LID, BATTERY COVER	ABS-HB

36.2.2. Main P.C.Board Parts

Note:
(*2) When replacing IC10, data need to be written to them with PQZZTCD540NZ.

Ref. No.	Part No.	Part Name & Description	Remarks
PCB100	PQWP1D540NZR	MAIN P.C.BOARD ASS'Y (RTL) (for KX-TCD540NZM)	
PCB100	PQWP1D154AZR	MAIN P.C.BOARD ASS'Y (RTL) (for KX-TCA154AZM)	
		(ICs)	
IC1	C1CB00001607	IC	
IC2	C1BB00000265	IC	
IC4	C1BB00000783	IC	
IC5	C0JBAB000371	IC	
IC10	PQWI1D540NZR	IC (for KX-TCD540NZM) (*2)	
IC10	PQWI1D154AZR	IC (for KX-TCA154AZM) (*2)	
		(TRANSISTORS)	
Q1	PQVTFDN335N	TRANSISTOR(SI)	S
Q2	B1ADGE000004	TRANSISTOR(SI)	
Q3	B1ADGE000004	TRANSISTOR(SI)	
Q4	B1ADGE000004	TRANSISTOR(SI)	
Q5	B1ABCF000103	TRANSISTOR(SI)	
Q7	PQVT143XK146	TRANSISTOR(SI)	S
Q8	B1ADGE000004	TRANSISTOR(SI)	
Q9	UN9219J	TRANSISTOR(SI)	
Q10	PSVTDTC143X	TRANSISTOR(SI)	S
Q11	PSVTDTC143X	TRANSISTOR(SI)	S
		(DIODES)	
D1	B0JCME000035	DIODE(SI)	
D4	MA8047	DIODE(SI)	S
D5	MA8047	DIODE(SI)	S
D6	B0BC2R1A0006	DIODE(SI)	
D7	MA2Z72000	DIODE(SI)	
D8	B0JCDD000002	DIODE(SI)	
LED1	B3AEB0000029	LED	
LED2	B3AEB0000029	LED	
LED4	LNJ308G8JRA	LED	
LED5	LNJ308G8JRA	LED	
LED6	LNJ308G8JRA	LED	
LED7	LNJ308G8JRA	LED	
LED8	LNJ308G8JRA	LED	
LED9	PQVDBR1111C	LED	S
LED10	PQVDBR1111C	LED	S
		(COILS)	
F1	PQLQR2M5N6K	COIL	S
L1	G1A470L00001	COIL	
L2	PQLQR4D4R7K	COIL	
L4	G1C100MA0072	COIL	
L5	G1C100MA0072	COIL	
		(CRYSTAL OSCILLATORS)	
X1	H0D103500002	CRYSTAL OSCILLATOR	
X2	H2D600400004	CRYSTAL OSCILLATOR	
		(RESISTORS)	
R1	ERJ6RSJR10V	0.1	
R2	ERJ3EKF6802	6.8K	S
R3	ERJ3EKF1803	18K	S
R4	ERJ3GEYJ153	15K	

Ref. No.	Part No.	Part Name & Description	Remarks
R5	ERJ3GEYJ471	470	
R6	ERJ3GEYJ103	10K	
R7	ERJ3GEYJ224	220K	
R9	ERJ3GEYJ562	5.6K	
R10	ERJ3GEYF203	20K	
R11	ERJ3GEYF103	10K	
R12	ERJ3GEYJ393	39K	
R14	ERJ3GEYJ330	33	
R15	ERJ3GEYJ100	10	
R17	ERJ3GEYJ470	47	
R18	ERJ3GEYJ121	120	
R20	ERJ3GEYJ102	1K	
R21	ERJ3GEYJ102	1K	
R24	ERJ3GEYJ474	470K	
R25	ERJ3GEYJ331	330	
R26	ERJ3GEYJ101	100	
R29	ERJ3GEYJ222	2.2K	
R34	ERJ3GEYJ184	180K	
R35	ERJ3GEYJ273	27K	
R36	ERJ3GEYJ683	68K	
R37	ERJ3GEYJ330	33	
R38	ERJ3GEYJ330	33	
R39	ERJ3GEYJ103	10K	
R40	ERJ3GEYJ223	22K	
R43	ERJ6RQJR22	0.22	
R46	ERJ3GEYJ562	5.6K	
R47	ERJ3GEYJ562	5.6K	
R48	ERJ3GEYJ330	33	
R50	ERJ3GEYJ101	100	
R51	ERJ3GEYJ105	1M	
R52	ERJ3GEYJ183	18K	
R55	ERJ3GEYJ103	10K	
R57	ERJ3GEYJ680	68	
R58	ERJ3GEYJ2R2	2.2	
R59	ERJ3GEYJ560	56	
R60	ERJ3GEYJ102	1K	
R61	ERJ3GEYJ103	10K	
R62	ERJ3GEYJ103	10K	
R63	ERJ3GEYJ103	10K	
R64	ERJ3GEYJ103	10K	
R66	ERJ3GEYJ103	10K	
R71	ERJ3GEYJ104	100K	
R72	ERJ3GEYJ102	1K	
R73	ERJ3GEYJ564	560K	
R74	ERJ3GEY0R00	0	
R75	ERJ3GEY0R00	0	
R76	ERJ3GEYJ223	22K	
R77	ERJ3GEYJ681	680	
R80	ERJ3GEYJ100	10	
R81	ERJ3GEY0R00	0	

Ref. No.	Part No.	Part Name & Description	Remarks
R90	ERJ3GEYJ103	10K	
		(CAPACITORS)	
C1	EEE0JA331P	330	
C2	ECST0JY106	10	
C3	ECUV1C104KBV	0.1	
C4	ECUV1H100DCV	10P	
C5	ECST0JY106	10	
C7	ECUV1H100DCV	10P	
C8	ECUV1A224KBV	0.22	
C9	ECUV1C683KBV	0.068	
C10	ECUV1C104KBV	0.1	
C12	ECUV1A105KBV	1	
C13	ECUV1C104KBV	0.1	
C14	ECUV1C104KBV	0.1	
C15	ECUV1C105ZFV	1	
C16	ECUV1C104KBV	0.1	
C17	ECUV1H100DCV	10P	
C18	ECUV1H102KBV	0.001	
C19	ECUV1C104KBV	0.1	
C20	ECUV1C104KBV	0.1	
C21	ECUV1C104KBV	0.1	
C22	ECUV1C104KBV	0.1	
C23	ECUV1C104KBV	0.1	
C24	ECUV1C104KBV	0.1	
C27	ECUV1A105KBV	1	S
C28	ECUV1A105KBV	1	S
C29	ECUV1A105KBV	1	S
C30	ECUV1A105KBV	1	S
C31	ECUV1C474KBV	0.47	
C32	ECUV1C474KBV	0.47	
C33	ECUV1C474KBV	0.47	
C34	ECUV1C474KBV	0.47	
C35	ECUV1C474KBV	0.47	
C37	ECUV1C683KBV	0.068	
C38	ECUV1H471JCV	470P	S
C39	ECUV1A105ZFV	1	
C40	ECST0JY106	10	
C42	ECUV1A106ZF	10	S
C44	ECUV1A105ZFV	1	
C45	ECUV1C104KBV	0.1	
C46	ECUV1C104KBV	0.1	
C47	ECUV1C104KBV	0.1	
C48	ECUV1C473KBV	0.047	
C49	ECUV1C104KBV	0.1	
C52	ECUV1C104KBV	0.1	
C54	ECUV1H330JCV	33P	
C55	ECUV1C104KBV	0.1	
C56	ECUV1H680JCV	68P	
C57	EEE0JA331P	330	
C58	ECUV1C104KBV	0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C59	ECUV1A105ZFV	1	
C60	ECUV1A475KB	4.7	
C61	ECUV1A105KBV	1	
C62	ECUV1A475KB	4.7	
C63	ECUV1H562KBV	0.0056	
C64	ECUV1H020CCV	2P	
C65	ECUV1H020CCV	2P	
C66	ECUV1H020CCV	2P	
C67	F1G1H100A420	10P	
C68	ECUV1C683KBV	0.068	
C69	ECUV1H020CCV	2P	
C70	ECUV1C104KBV	0.1	
C73	ECUV1C104KBV	0.1	
C74	ECUV1C104KBV	0.1	
C75	ECUV1H100DCV	10P	
C77	ECUV1H100DCV	10P	
C80	PQCUV1A225ZF	2.2	
C81	ECUV1H020CCV	2P	
C82	ECUV1H020CCV	2P	
C86	ECUV1C105ZFV	1	
C87	ECUV1H100DCV	10P	
C89	ECUV1H100DCV	10P	
C90	ECUV1H100DCV	10P	
C91	ECUV1H100DCV	10P	
C92	ECUV1H100DCV	10P	
C93	ECUV1H101JCV	100P	
C94	ECUV1H101JCV	100P	
C100	ECUV1A105ZFV	1	
C101	ECUV1C104KBV	0.1	
		(OTHERS)	
MIC	L0CBAB000052	MICROPHONE	
IC3	J3FKK0000003	RF UNIT	
CN4	K2HD103D0001	JACK	
SW1	K0C115A00003	SEESAW SWITCH	

36.3. Charger Unit

36.3.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
1	PQLV30018ZM1	HANDSET CHARGER	
1-1	PQGG10155Y5	GRILLE	ABS-HB
1-2	PQKM10591Y3	CABINET BODY	PS-HB
1-3	PQKE10356Z1	GUIDE, CHARGE TERMINAL CASE	POM-HB
1-4	PQJT10206Z	CHARGE TERMINAL	
1-5	PQHX10991Z	CUSHION, URETHANE FORM	
1-6	PQMH10426Z	WEIGHT	
1-7	PQYF10563Z3	CABINET COVER	PS-HB
1-8	PQGT15735W	NAME PLATE (made in Malaysia)	
1-8	PQGT15735X	NAME PLATE (made in Thailand)	

36.3.2. Main P.C.Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB200	PQWPA142ESCH	MAIN P.C.BOARD ASS'Y (RTL)	
		(DIODE)	
D1	B0JAME000085	DIODE(SI)	
		(JACK)	
J1	PQJJ1B4Y	JACK	S
		(RESISTORS)	
R1	ERJ1WYJ220	22	
R2	ERJ1WYJ270	27	

36.4. Accessories and Packing Materials

36.4.1. KX-TCD540NZM

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQLV19ALZ	AC ADAPTOR (for Base Unit)	⚠
A2	PQLV200ALZ	AC ADAPTOR (for Charger Unit)	⚠
A3	PQJA87S	CORD, TELEPHONE	
A4	PQJA212K	CORD, TELEPHONE	
A5	PQKE10355Z1	HANGER, BELT CLIP	PC+ABS-HB
A6	PQJXH0128Y	HANDSET	
A7	PQQX13819Z	INSTRUCTION BOOK	
A8	PQQW13042Z	QUICK GUIDE	
A9	PQQW12846W	LEAFLET, RECHARGE	
P1	PQPP170Y	PROTECTION COVER (for Base Unit)	
P2	PFPH1050Z	PROTECTION COVER (for Cordless Handset)	
P3	PQPP10086Z	PROTECTION COVER (for Charger Unit)	
P4	PQPK14199Z	GIFT BOX	
P5	PQPD10577Z	CUSHION	
P6	PQPD10573Z	CUSHION	

36.4.2. KX-TCA154AZM

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQLV200ALZ	AC ADAPTOR	⚠
A2	PQKE10355Z1	HANGER, BELT CLIP	PC+ABS-HB
A3	PQQX13839Z	INSTRUCTION BOOK	
A4	PQQW12846W	LEAFLET, RECHARGE	
P1	PQPP10086Z	PROTECTION COVER (for Charger Unit)	
P2	PQPP10084Z	PROTECTION COVER (for Cordless Handset)	
P3	PQPK14186Z	GIFT BOX	

36.5. Fixtures and Tools

Part No.	Part Name & Description	Remarks
PQZZ1CD505E	JIG CABLE	
PQZZTCD540NZ	BATCH FILE	

Note:
**See CHECK PROCEDURE (BASE UNIT) (
), and CHECK PROCEDURE (CORDLESS HANDSET) (
).**

37. FOR SCHEMATIC DIAGRAM

37.1. Base Unit (SCHEMATIC DIAGRAM (BASE UNIT))

Notes:

1. DC voltage measurements are taken with voltmeter from the negative voltage line.

Important Safety Notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified parts.

2. This schematic diagram may be modified at any time with the development of

new technology.

37.2. Cordless Handset (SCHEMATIC DIAGRAM (CORDLESS HANDSET))

Notes:

1. **DC voltage measurements are taken with an oscilloscope or a tester with a ground.**
2. **The schematic diagrams and circuit board may be modified at any time with the development of new technology.**

38. SCHEMATIC DIAGRAM (BASE UNIT)

38.1. Main

38.2. Operation

38.3. Memo

39. SCHEMATIC DIAGRAM (CORDLESS HANDSET)

40. SCHEMATIC DIAGRAM (CHARGER UNIT)

41. CIRCUIT BOARD (BASE UNIT)

41.1. Main

41.1.1. Component View

41.1.2. Flow Solder Side View

41.2. Operation

41.2.1. Component View

41.2.2. Flow Solder Side View

42. CIRCUIT BOARD (CORDLESS HANDSET)

42.1. Component View

42.2. Flow Solder Side View

43. CIRCUIT BOARD (CHARGER UNIT)

43.1. Component View

43.2. Flow Solder Side View

M
KXTCD540NZM
KXTCA154AZM

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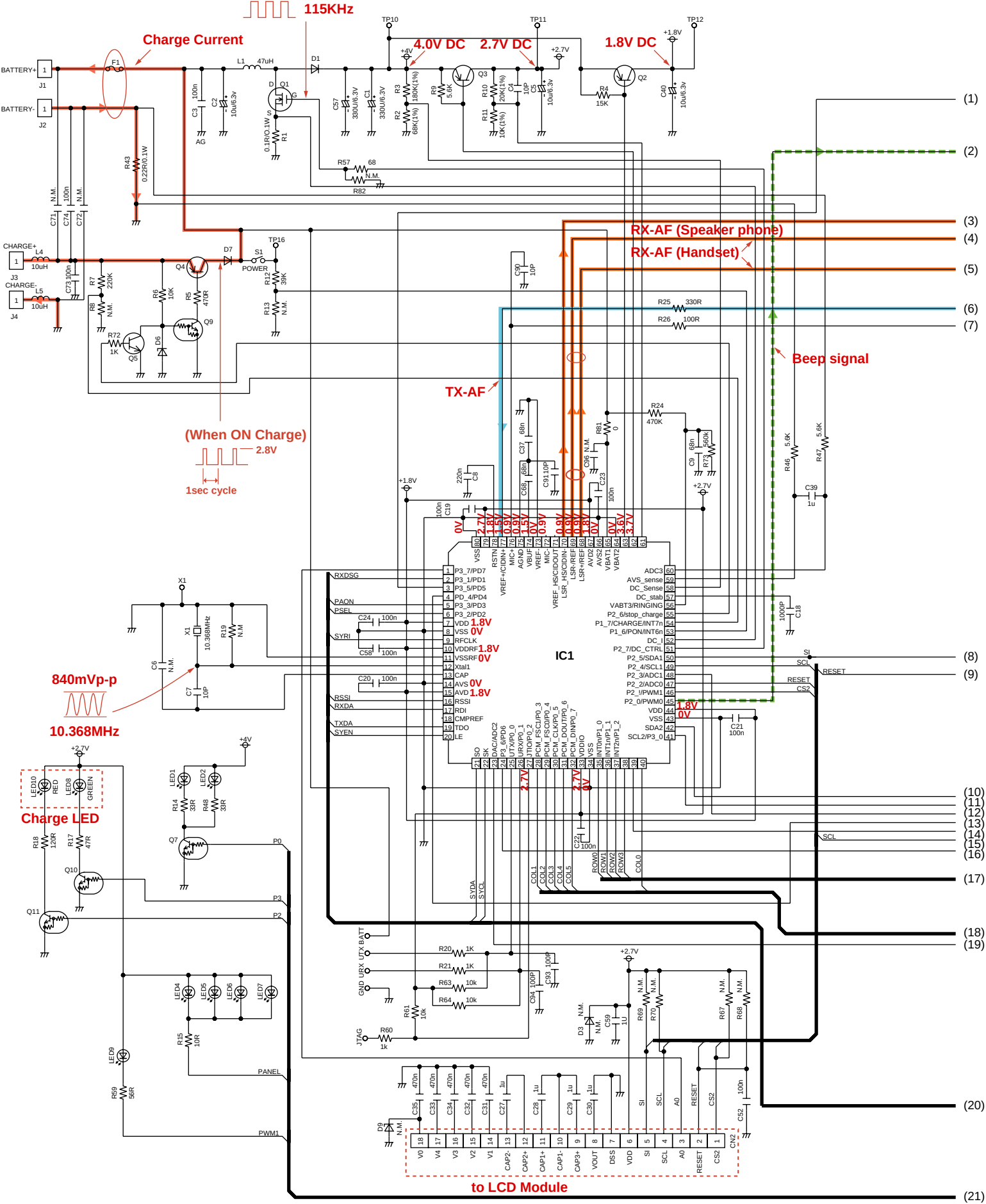
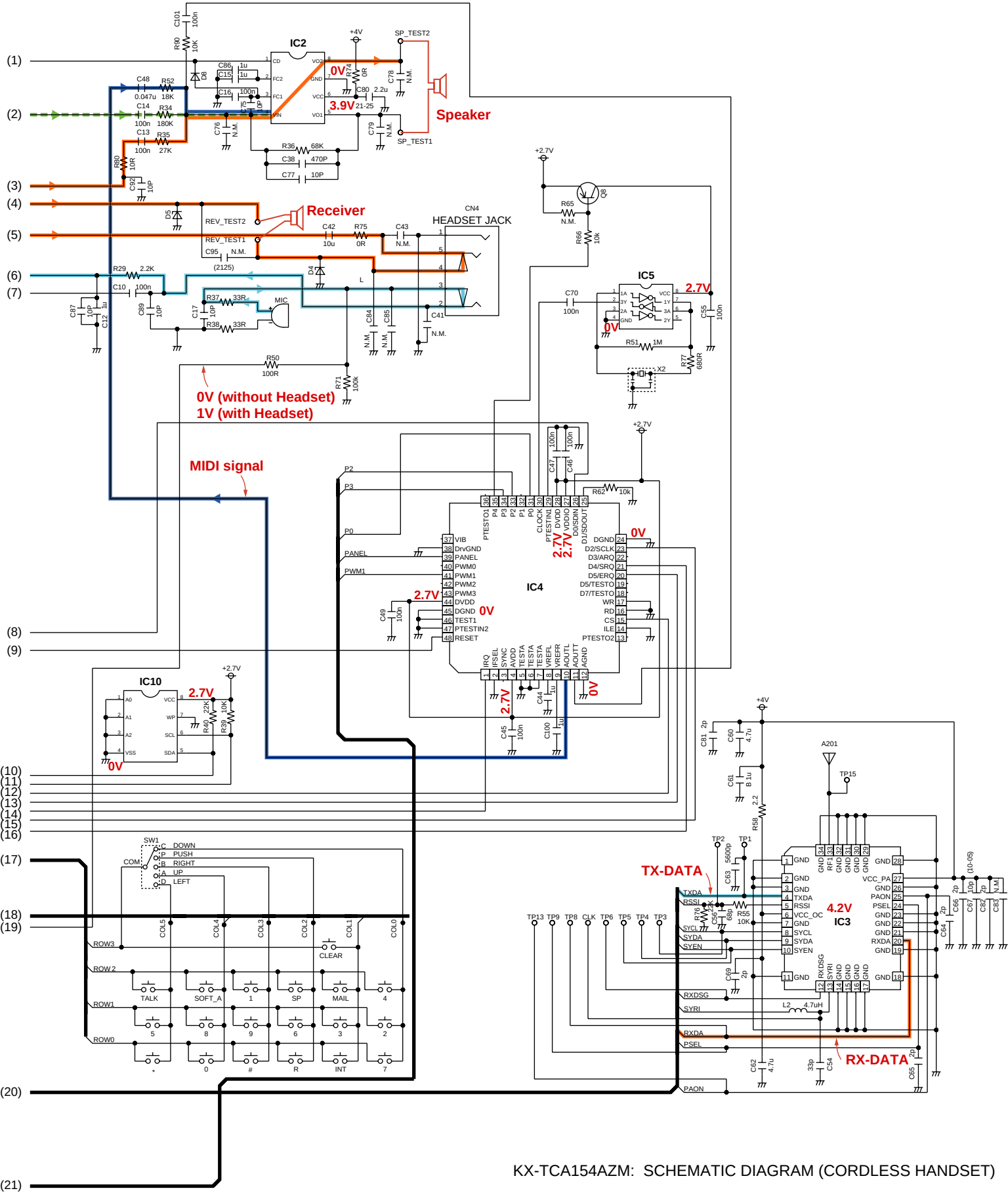
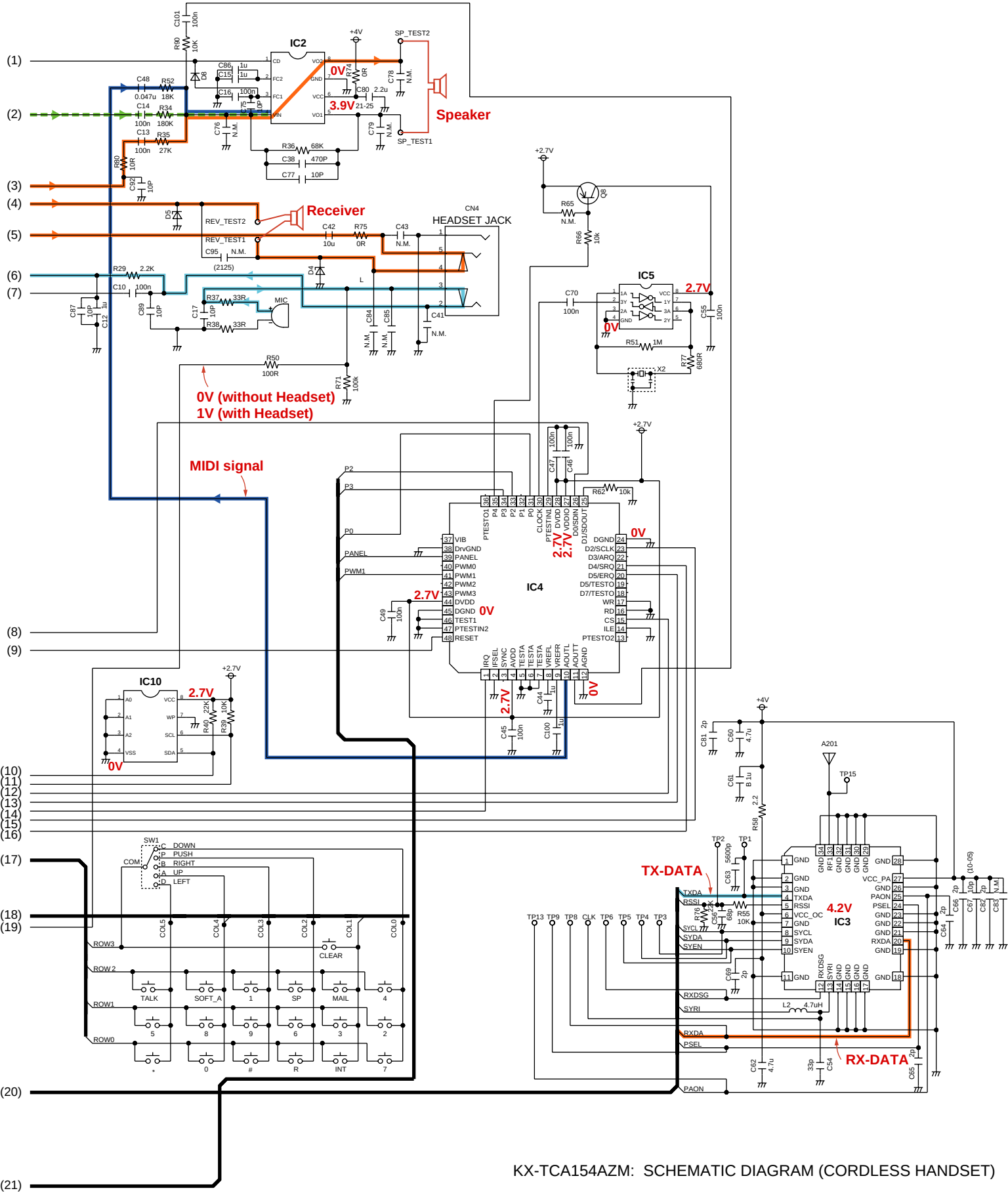
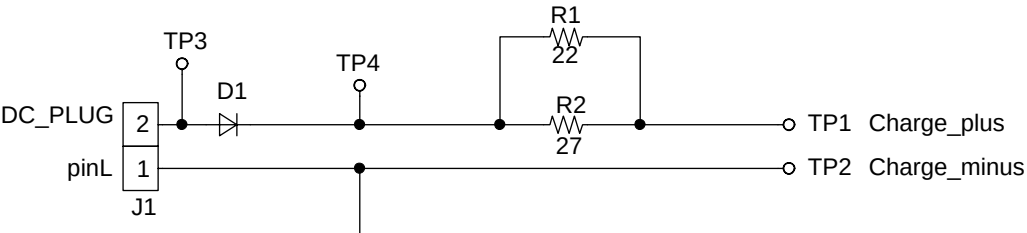

115KHz
Charge Current
4.0V DC
2.7V DC
1.8V DC
BATTERY+
BATTERY-
CHARGE+
CHARGE-
RX-AF (Speaker phone)
RX-AF (Handset)
Beep signal
TX-AF
(When ON Charge)
2.8V
1sec cycle
840mVp-p
10.368MHz
Charge LED
IC1
to LCD Module
PANEL
PWM1
RXDSG
PAON
PSEL
SYRI
RSSI
RXDA
TXDA
SYEN
RESET
CS2
SCL
SI
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)
(10)
(11)
(12)
(13)
(14)
(15)
(16)
(17)
(18)
(19)
(20)
(21)



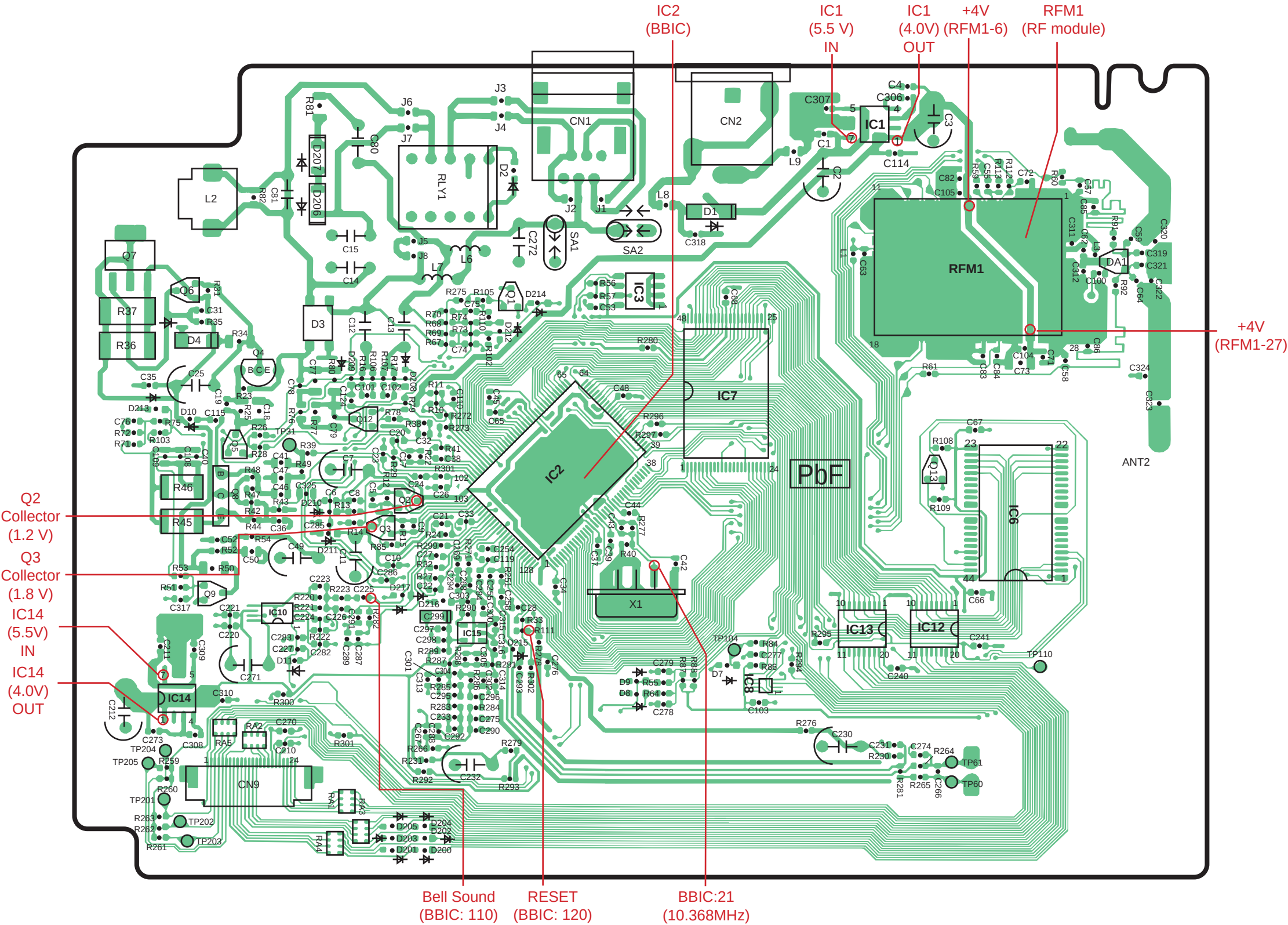
KX-TCA154AZM: SCHEMATIC DIAGRAM (CORDLESS HANDSET)



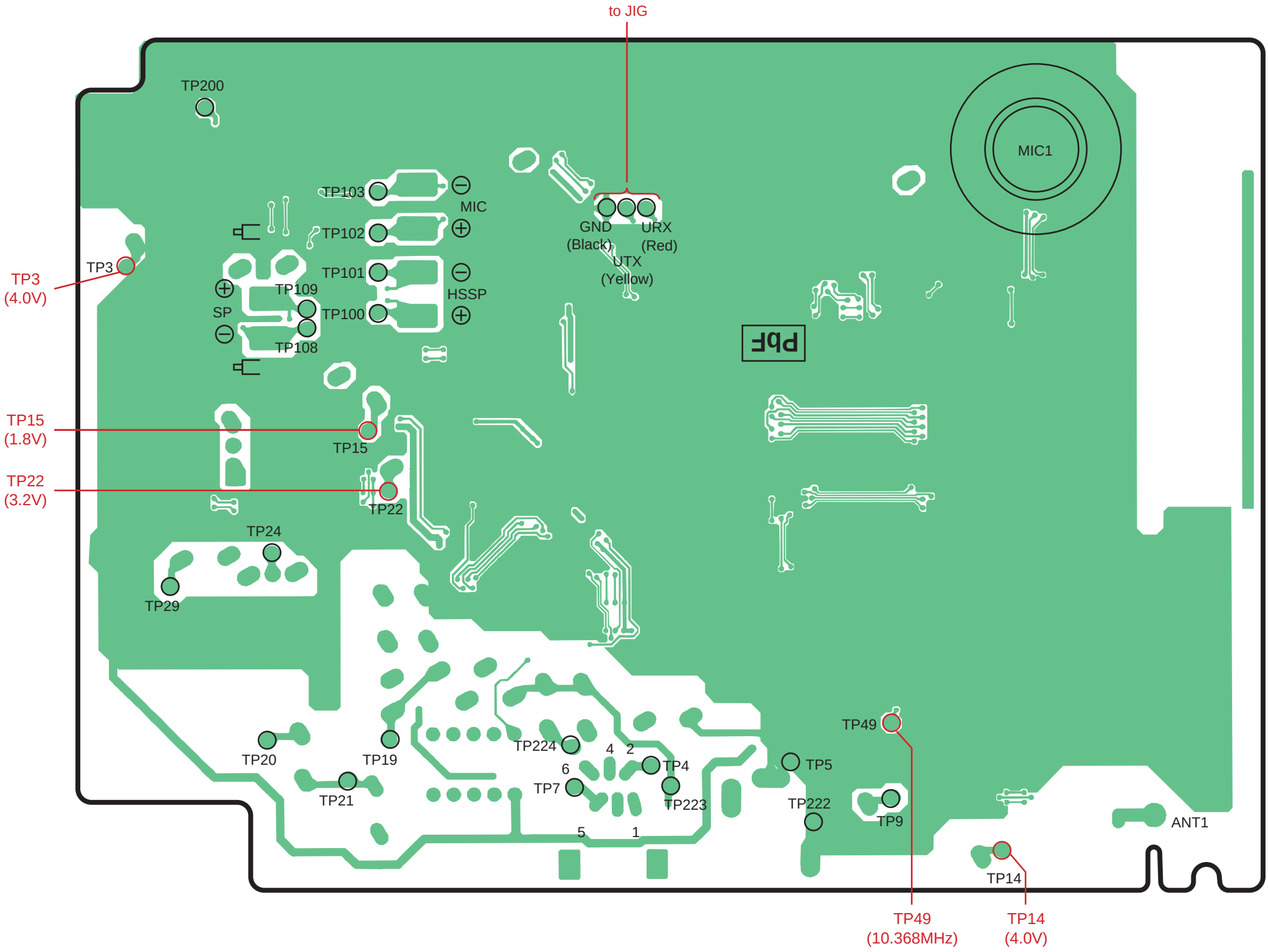
KX-TCA154AZM: SCHEMATIC DIAGRAM (CORDLESS HANDSET)



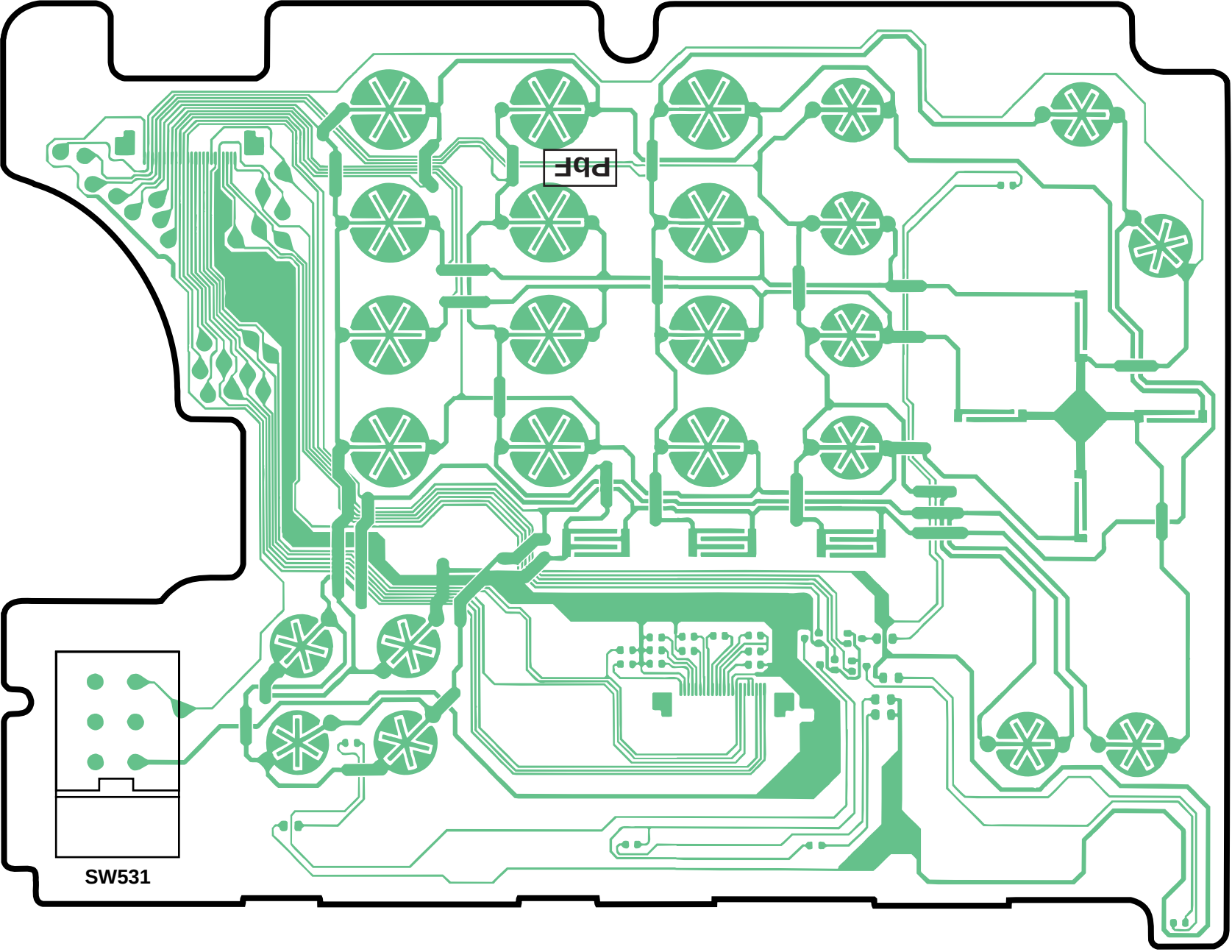
SCHEMATIC DIAGRAM (CHARGER UNIT)

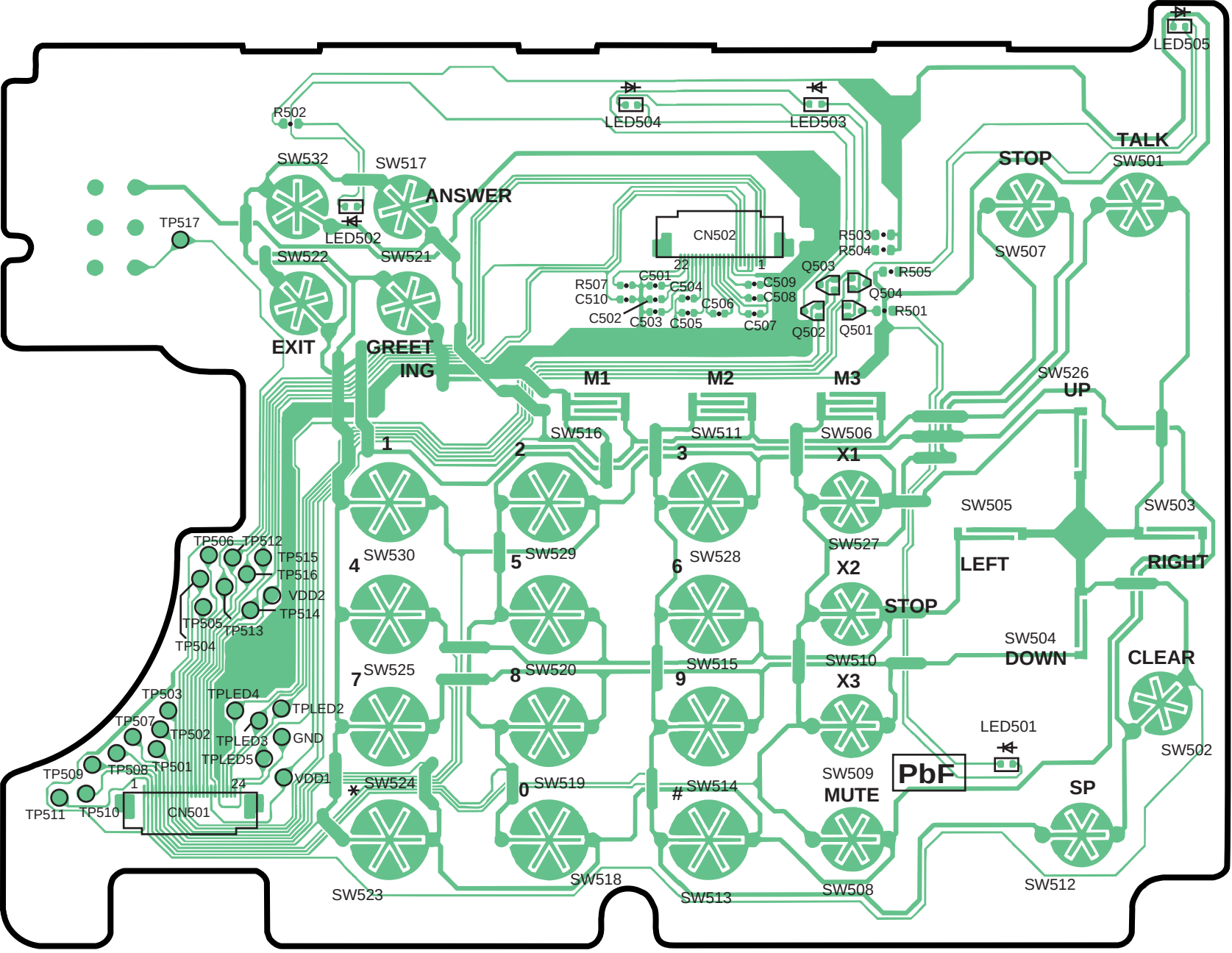


KX-TCD540NZM CIRCUIT BOARD (BASE UNIT) Main (Component View)

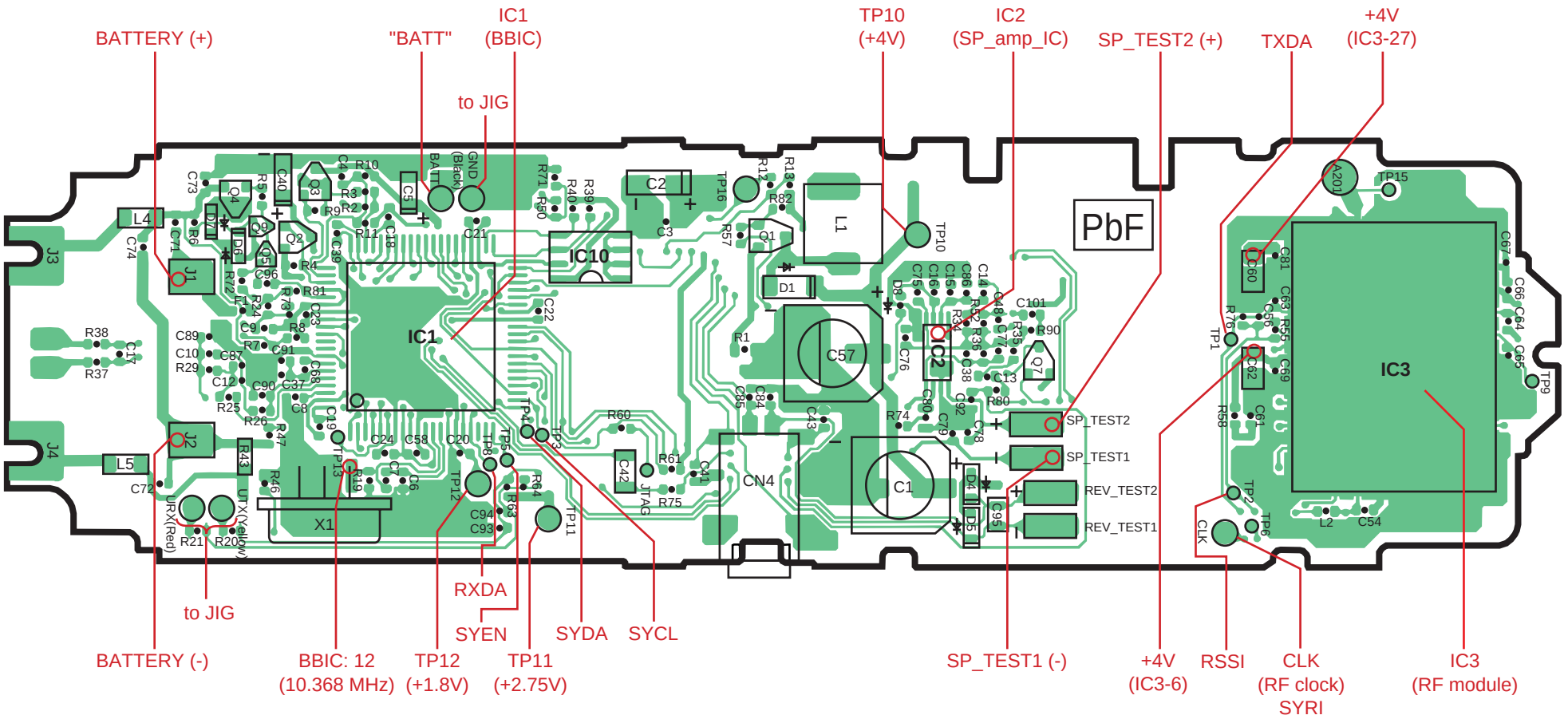


KX-TCD540NZM CIRCUIT BOARD (BASE UNIT) Main (Flow Solder Side View)

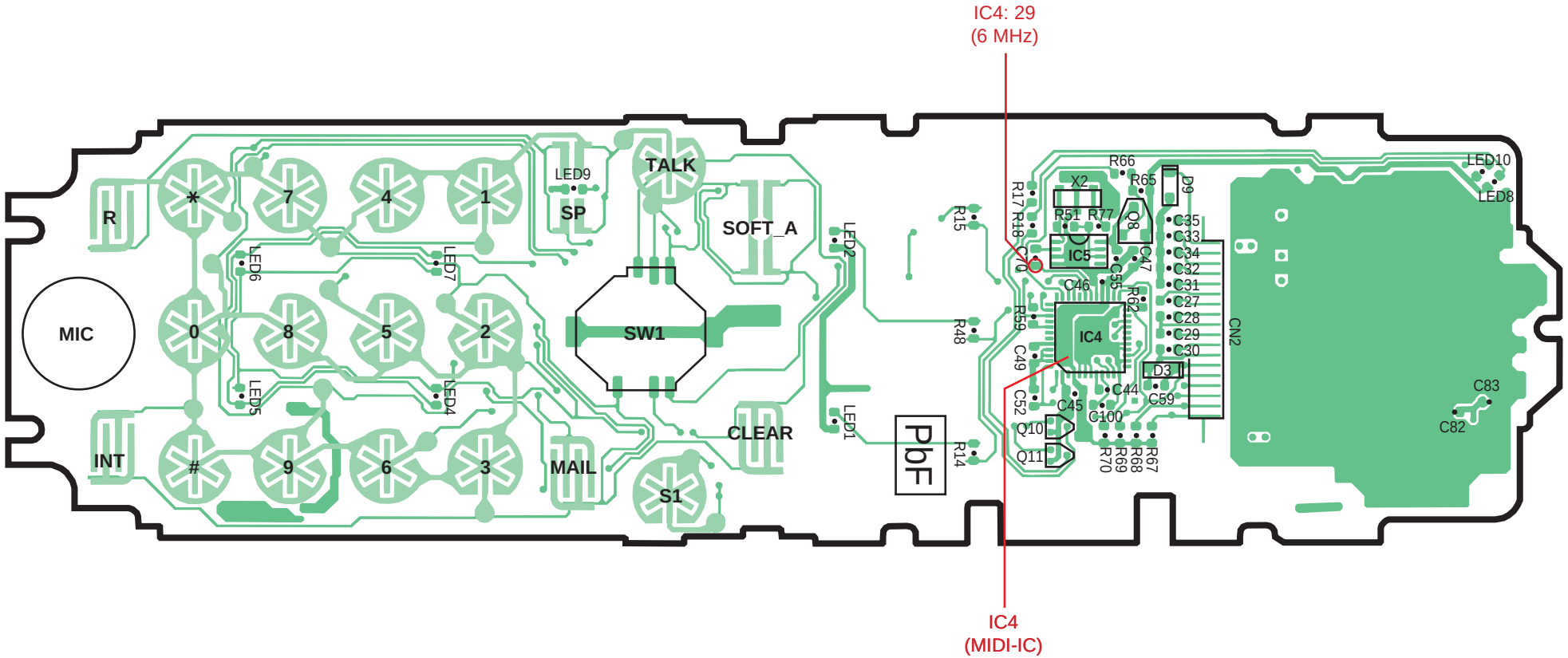

PbF
SW531



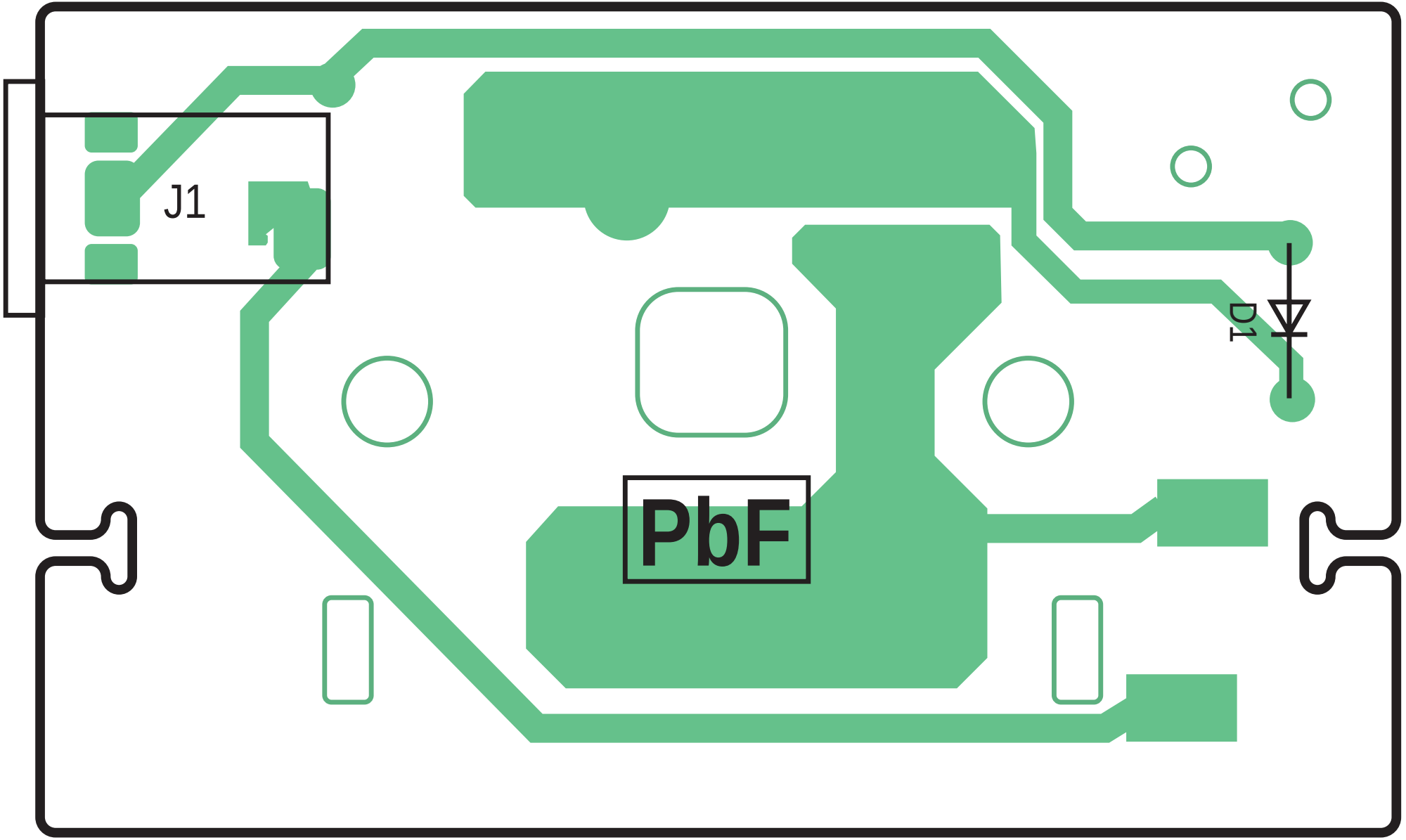
KX-TCD540NZM CIRCUIT BOARD (BASE UNIT) Operation (Flow Solder Side View)



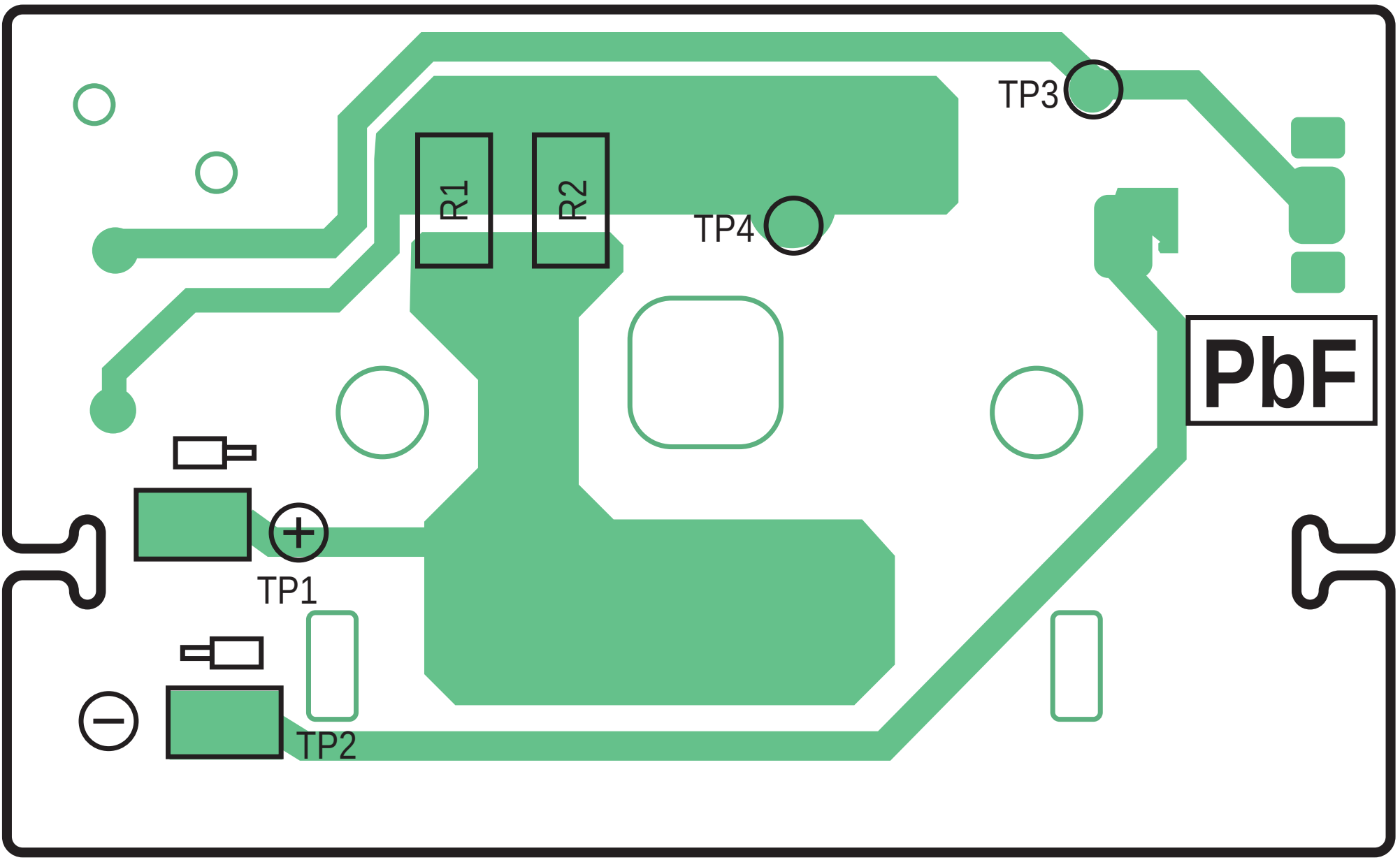
KX-TCA154AZM CIRCUIT BOARD (CORDLESS HANDSET) Component View



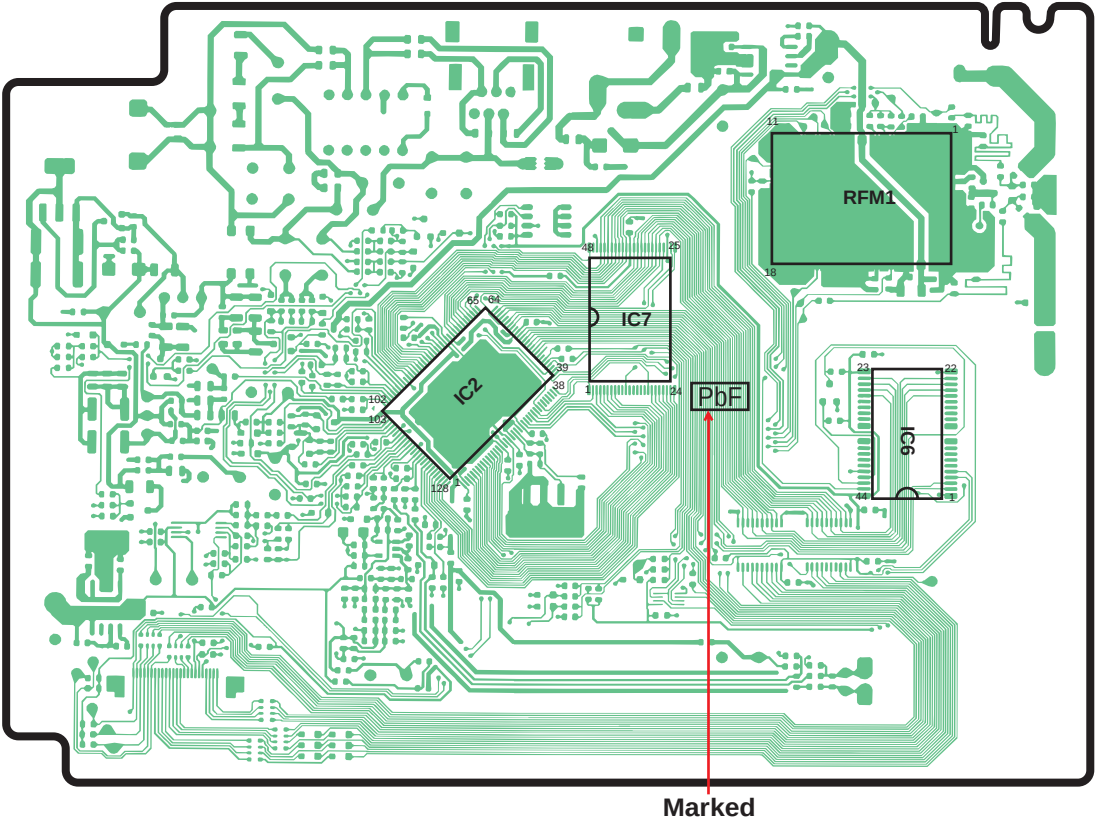
KX-TCA154AZM CIRCUIT BOARD (CORDLESS HANDSET) Flow Solder Side View

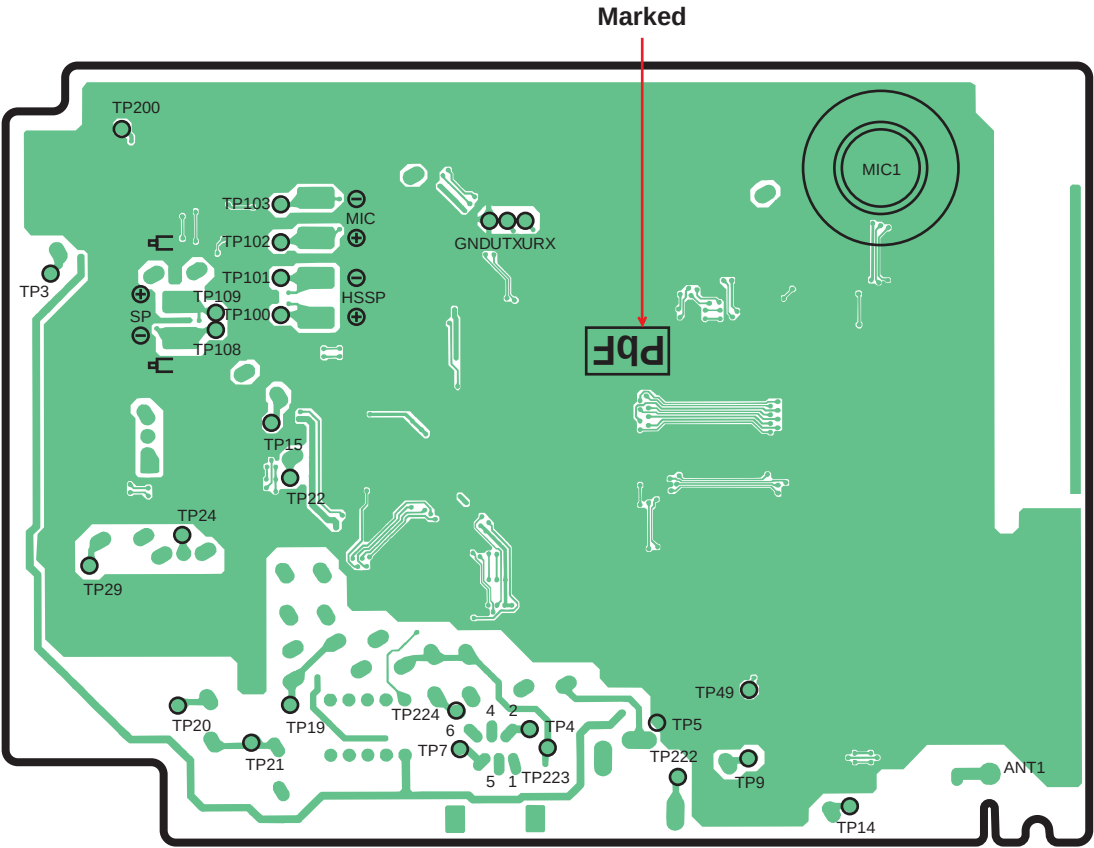


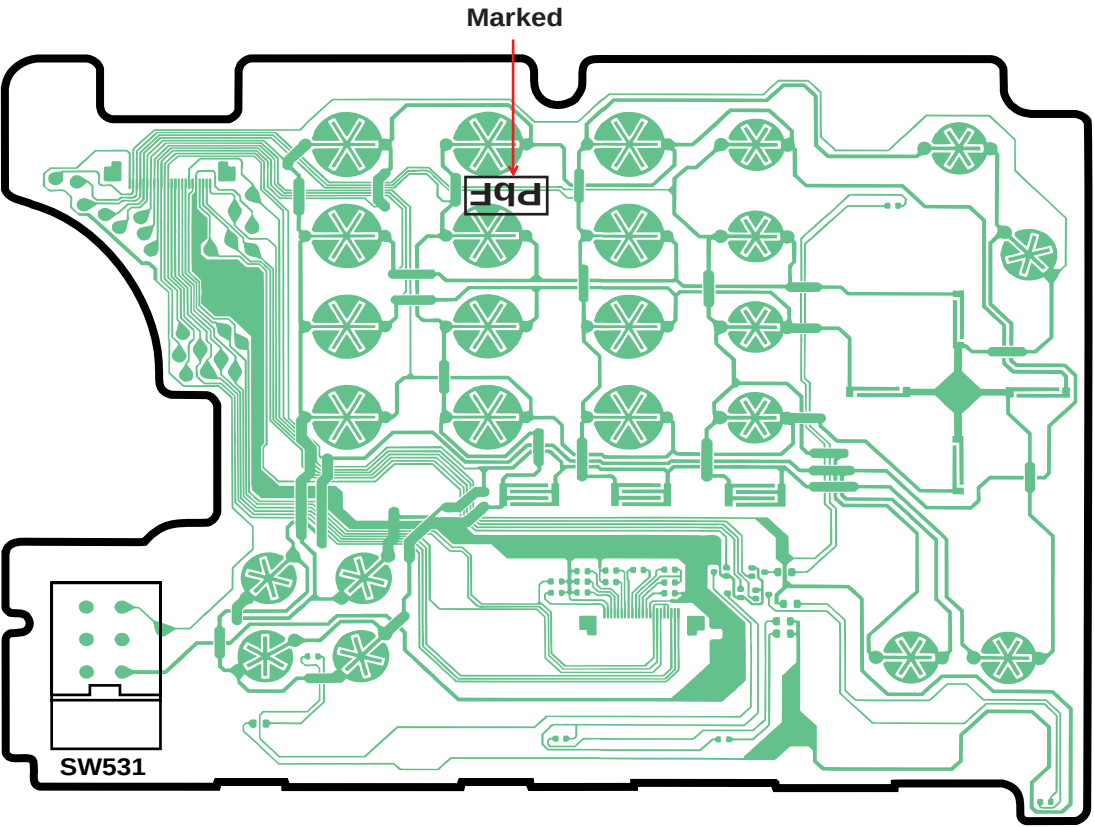
CIRCUIT BOARD (CHARGER UNIT) Component View

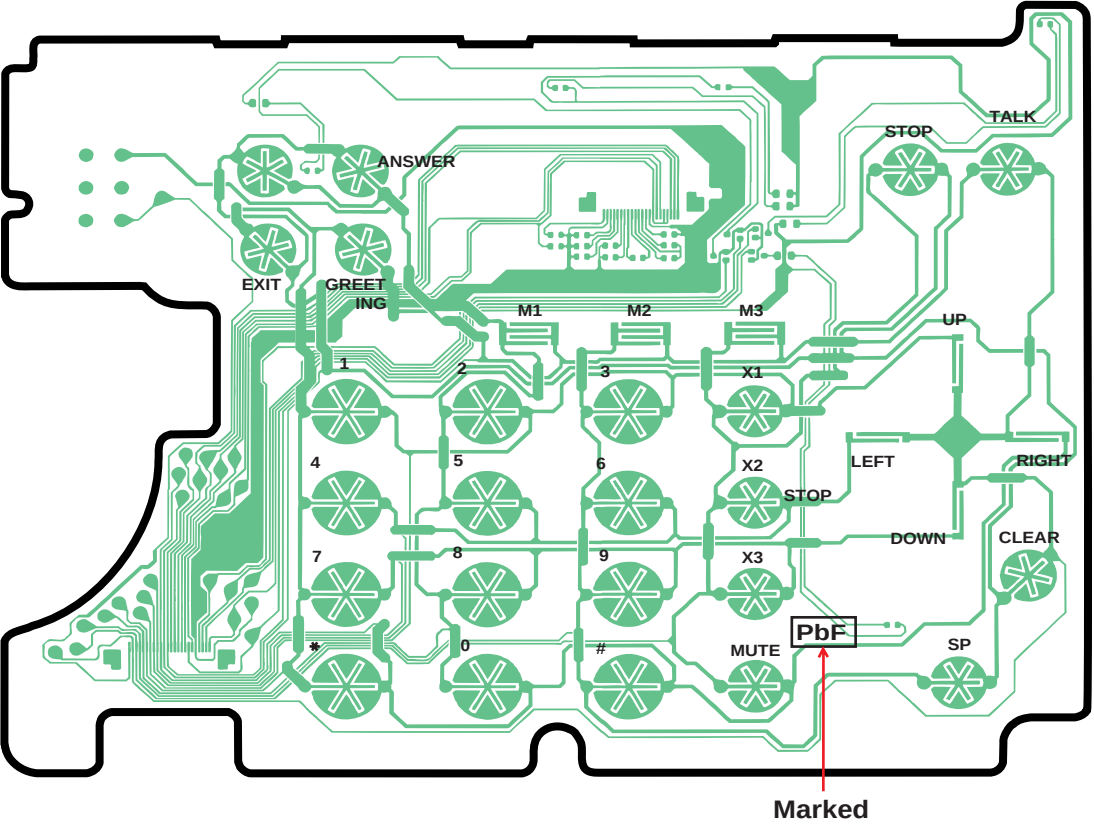


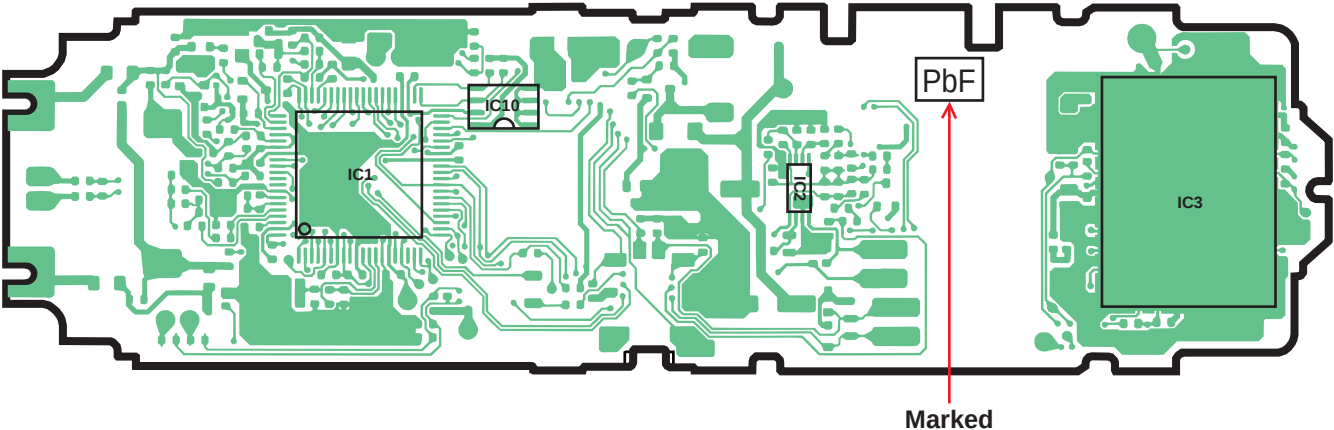
CIRCUIT BOARD (CHARGER UNIT) Flow Solder Side View

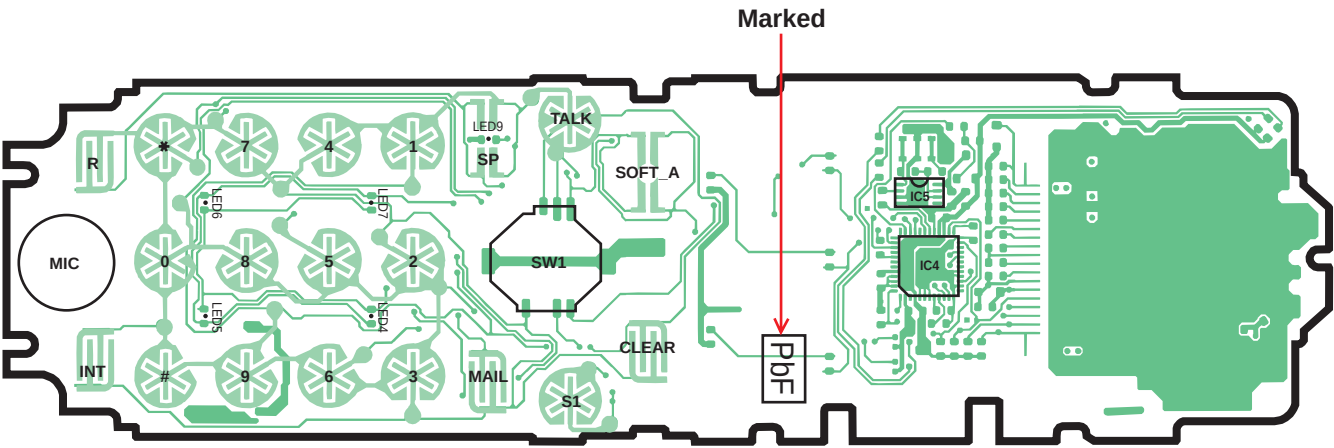

RFM1
IC7
IC2
IC6
PbF
Marked

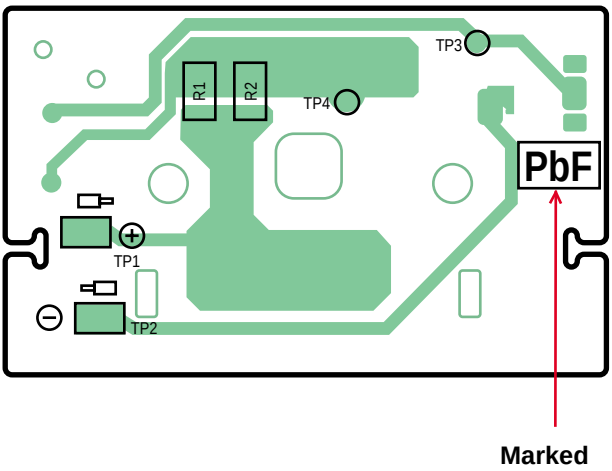

Marked
TP200
TP103
MIC
TP102
GNDUTXURX
TP3
TP101
TP109
HSSP
SP
TP100
TP108
MIC1
PbF
TP15
TP22
TP24
TP29
TP49
TP20
TP19
TP224
4
2
6
TP4
TP5
TP7
TP222
TP21
5
1
TP223
TP9
ANT1
TP14


Marked
PbF
SW531

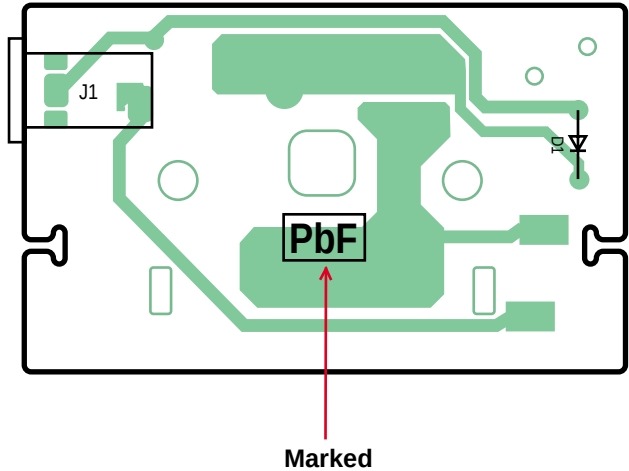

ANSWER
EXIT
GREET
ING
M1
M2
M3
1
2
3
X1
4
5
6
X2
STOP
7
8
9
X3
*
0
#
MUTE
PbF
TALK
STOP
UP
LEFT
RIGHT
DOWN
CLEAR
SP
Marked


PbF
IC1
IC10
IC2
IC3
Marked

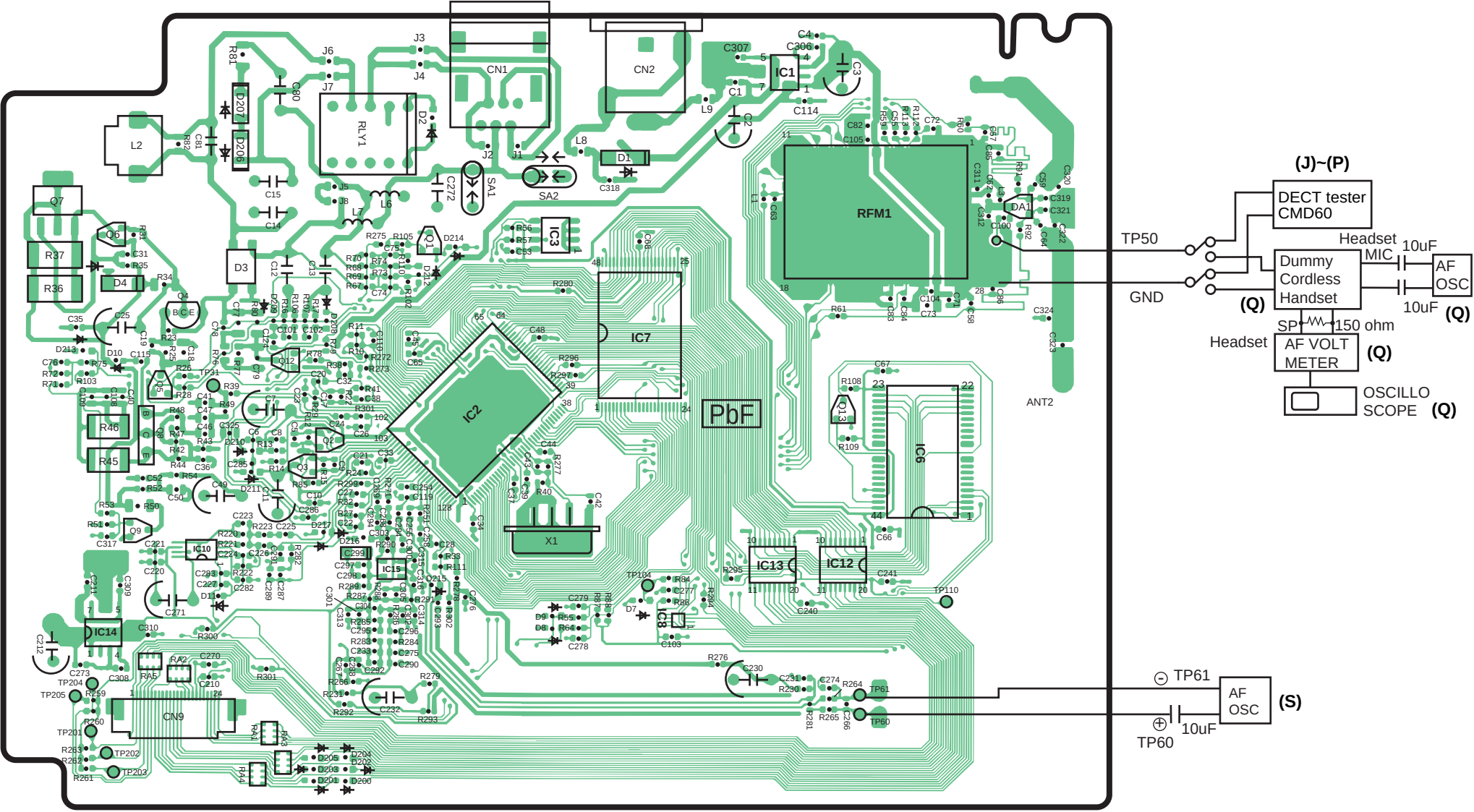

Marked
R
*
7
4
1
LED9
SP
TALK
SOFT_A
LED6
LED7
MIC
0
8
5
2
SW1
IC5
IC4
LED5
LED4
INT
#
9
6
3
MAIL
S1
CLEAR
PbF

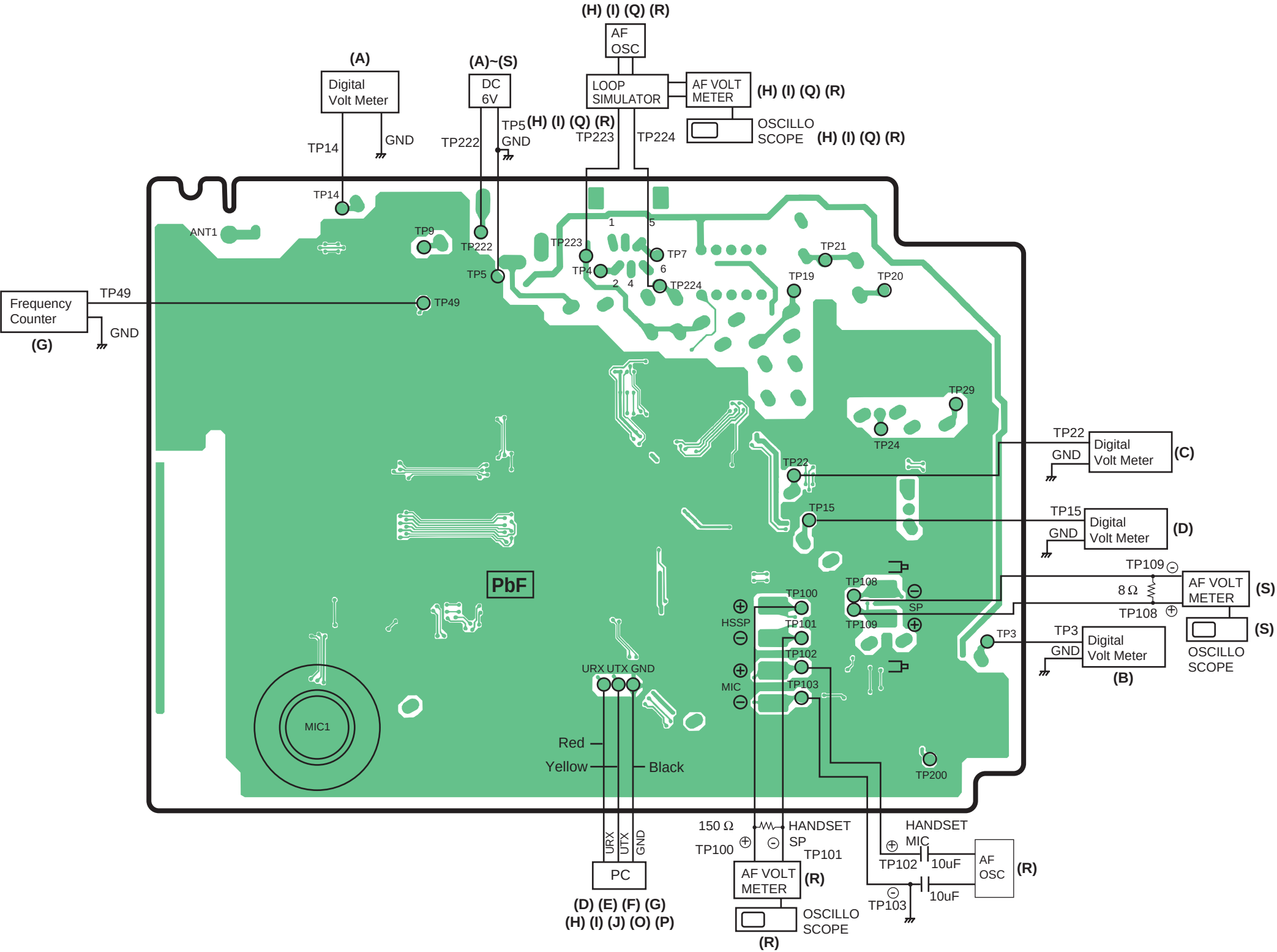


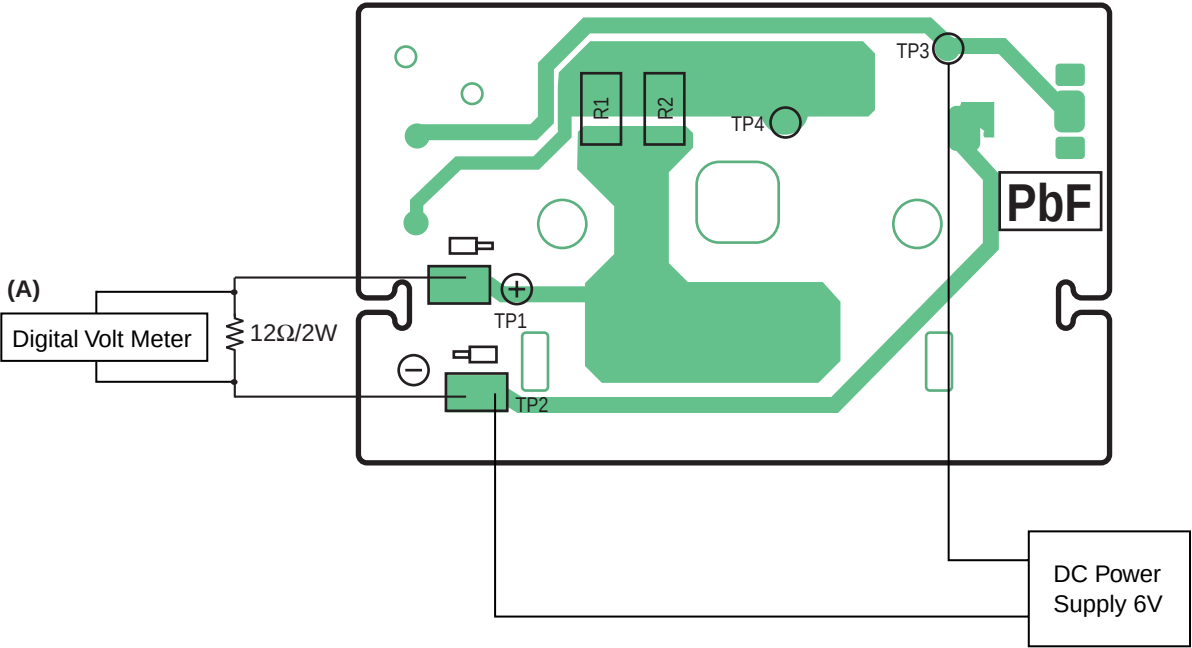
(Component View)

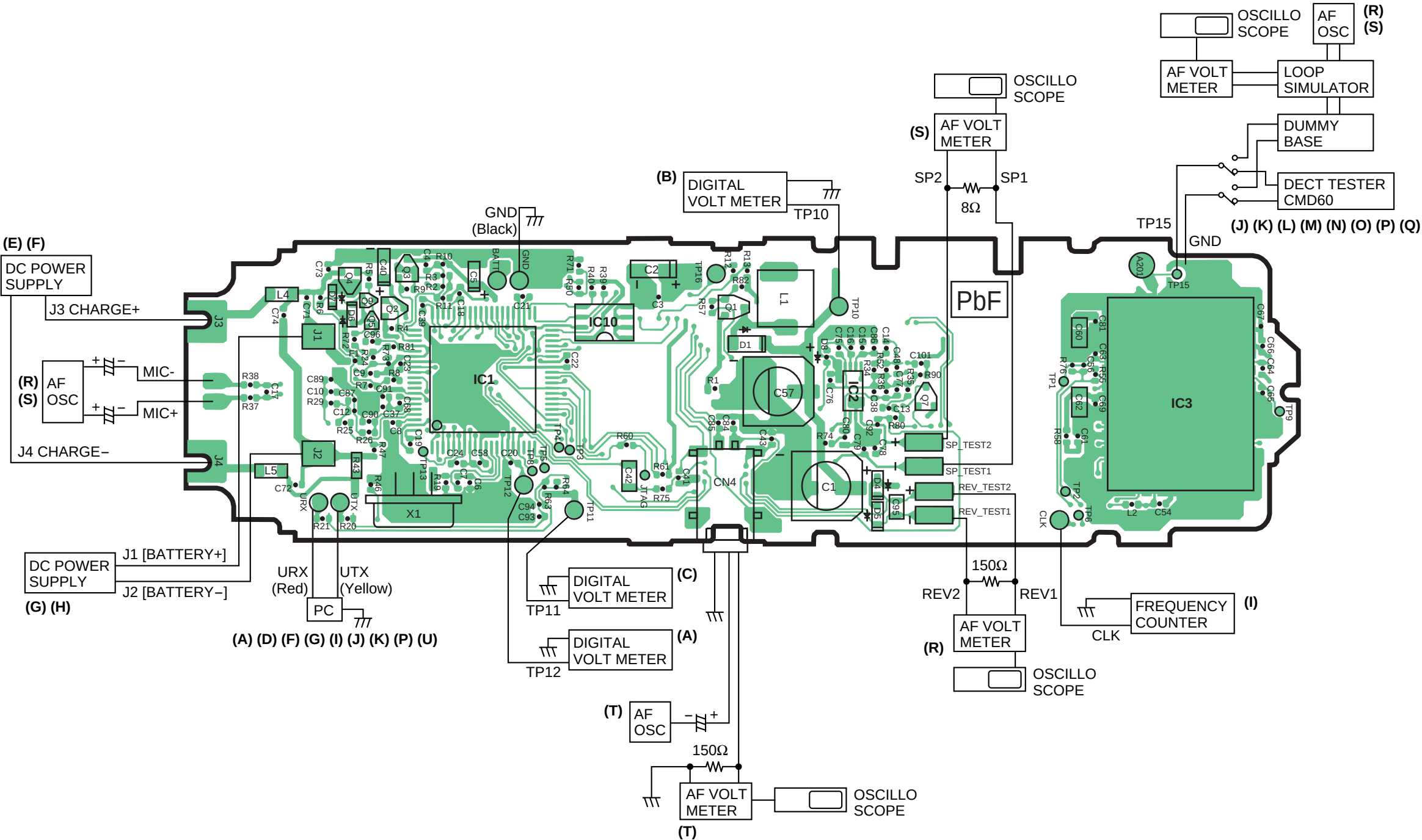


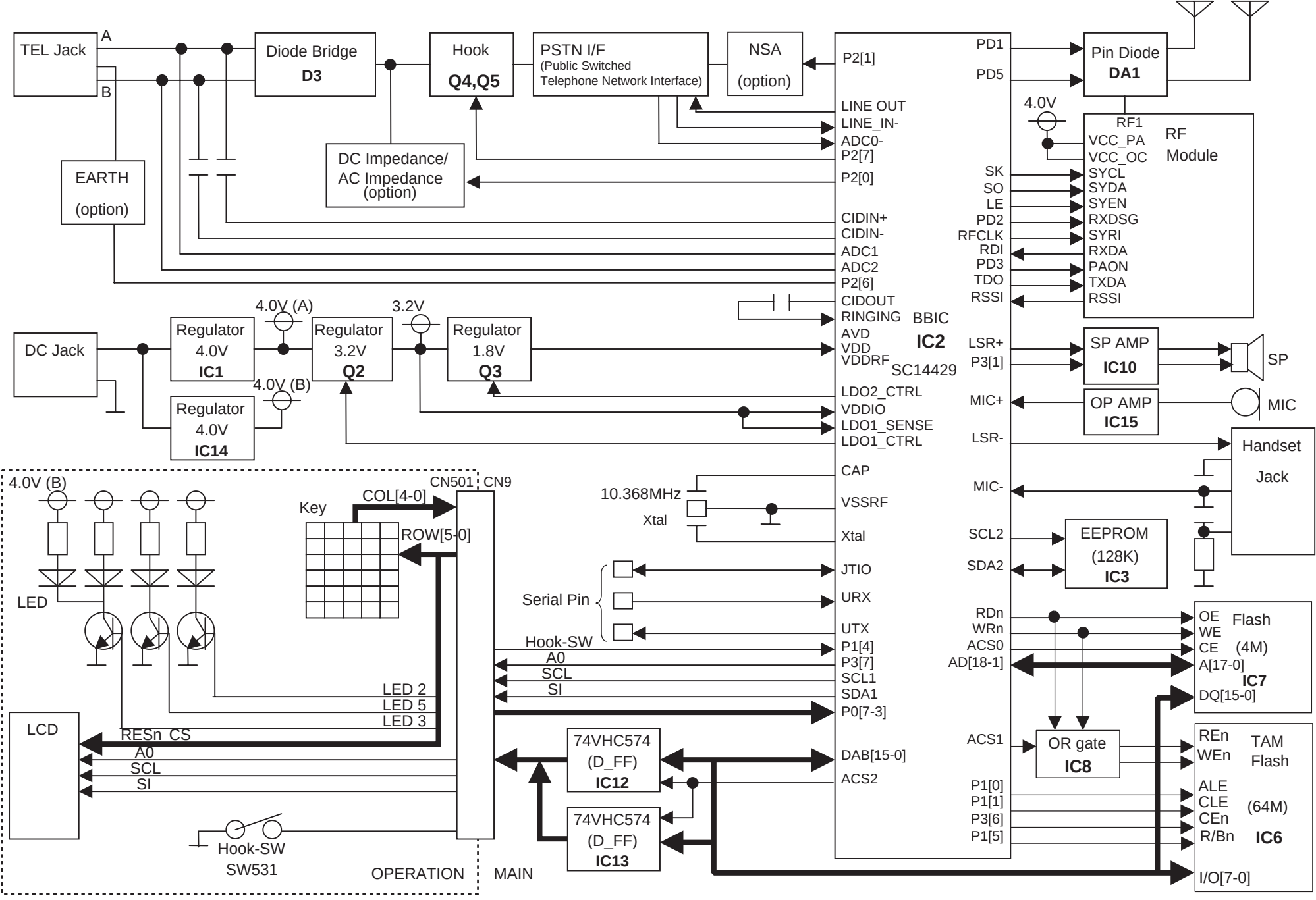
(Flow Solder Side View)


(J)~(P)
DECT tester
CMD60
TP50
Headset
MIC
10uF
Dummy
Cordless
Handset
AF
OSC
GND
(Q)
10uF
(Q)
SP
150 ohm
Headset
AF VOLT
METER
(Q)
OSCILLO
SCOPE
(Q)
TP61
AF
OSC
(S)
TP60
10uF
IC1
IC2
IC3
IC6
IC7
IC10
IC12
IC13
IC14
IC15
RFM1
X1
CN1
CN2
CN9
RLY1
SA1
SA2
ANT2
PbF

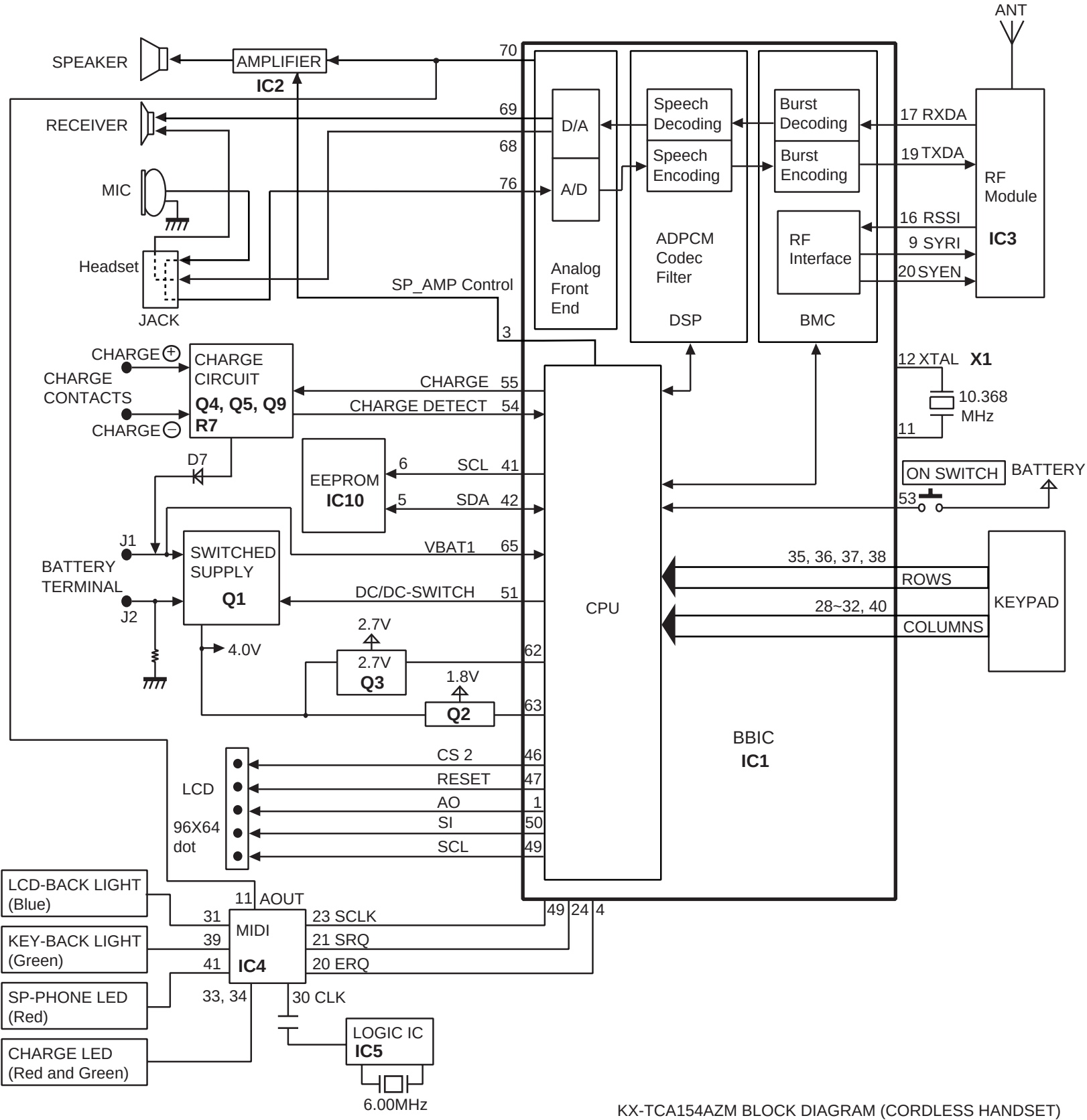

(H) (I) (Q) (R)
AF OSC
(A)
Digital Volt Meter
(A)~(S)
DC 6V
LOOP SIMULATOR
AF VOLT METER
(H) (I) (Q) (R)
OSCILLO SCOPE
(H) (I) (Q) (R)
TP14
GND
TP222
TP5
GND
TP223
TP224
TP14
ANT1
TP9
TP222
TP5
TP223
TP4
TP7
TP224
TP21
TP19
TP20
Frequency Counter
TP49
GND
(G)
TP49
TP29
TP24
TP22
TP22
GND
Digital Volt Meter
(C)
TP15
TP15
GND
Digital Volt Meter
(D)
PbF
TP109
8 Ω
TP108
AF VOLT METER
(S)
OSCILLO SCOPE
(S)
TP108
SP
TP109
TP100
HSSP
TP101
TP102
MIC
TP103
TP3
TP3
GND
Digital Volt Meter
(B)
URX UTX GND
MIC1
Red
Yellow
Black
TP200
URX
UTX
GND
PC
(D) (E) (F) (G)
(H) (I) (J) (O) (P)
150 Ω
TP100
HANDSET SP
TP101
AF VOLT METER
(R)
OSCILLO SCOPE
(R)
HANDSET MIC
TP102
10uF
AF OSC
(R)
TP103
10uF


(A)
Digital Volt Meter
12Ω/2W
TP1
TP2
TP3
TP4
R1
R2
PbF
DC Power
Supply 6V

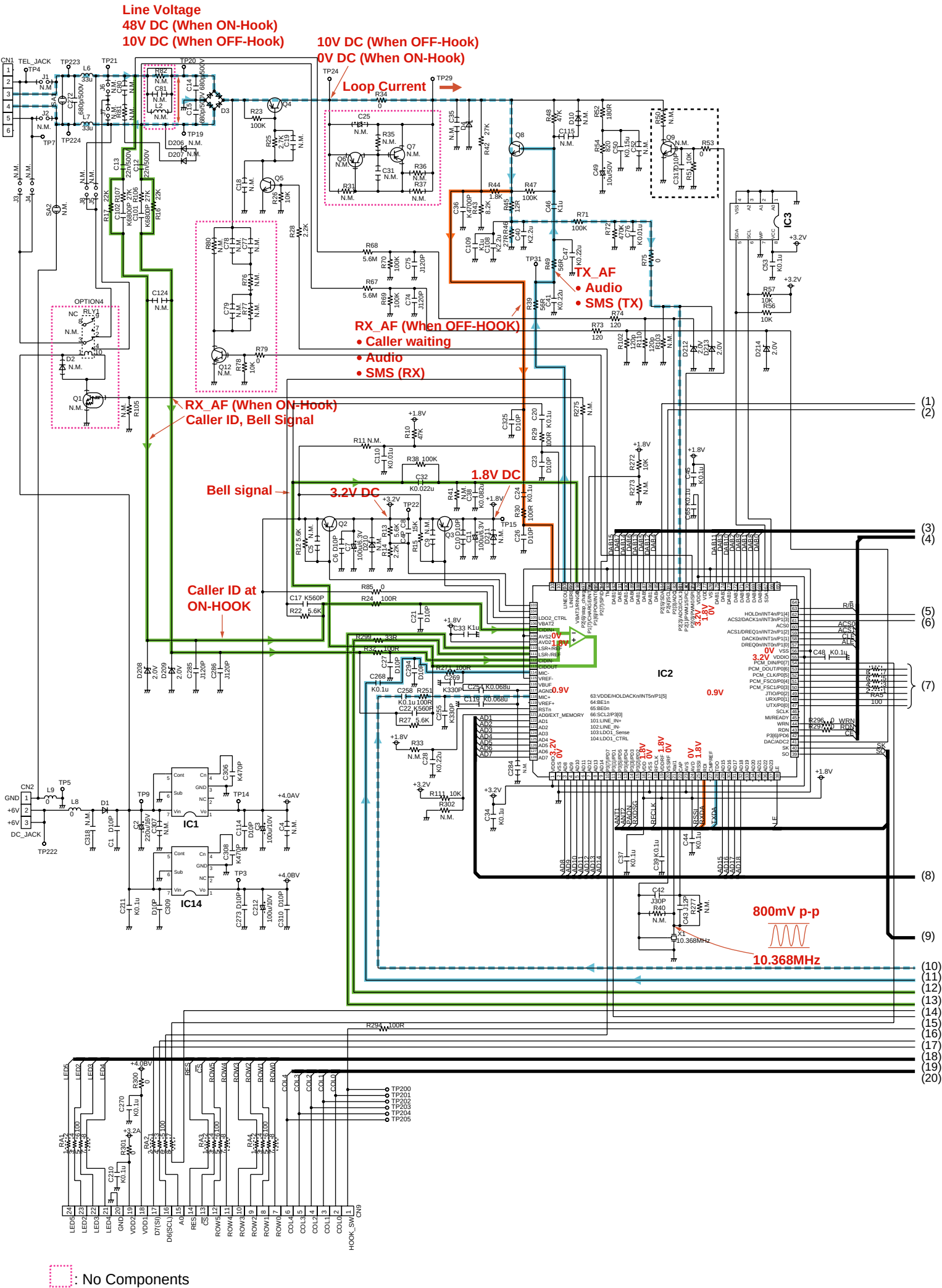

(E) (F)
DC POWER SUPPLY
J3 CHARGE+
(R) (S)
AF OSC
MIC-
MIC+
J4 CHARGE−
DC POWER SUPPLY
J1 [BATTERY+]
J2 [BATTERY−]
(G) (H)
URX (Red)
UTX (Yellow)
PC
(A) (D) (F) (G) (I) (J) (K) (P) (U)
GND (Black)
(B)
DIGITAL VOLT METER
TP10
(C)
DIGITAL VOLT METER
TP11
(A)
DIGITAL VOLT METER
TP12
(T)
AF OSC
150Ω
AF VOLT METER
OSCILLO SCOPE
(T)
(S)
OSCILLO SCOPE
AF VOLT METER
SP2
SP1
8Ω
PbF
150Ω
REV2
REV1
(R)
AF VOLT METER
OSCILLO SCOPE
TP15
GND
OSCILLO SCOPE
AF OSC
(R) (S)
AF VOLT METER
LOOP SIMULATOR
DUMMY BASE
DECT TESTER CMD60
(J) (K) (L) (M) (N) (O) (P) (Q)
FREQUENCY COUNTER
(I)
CLK
IC1
IC2
IC3
IC10
CN4
X1
SP_TEST2
SP_TEST1
REV_TEST2
REV_TEST1

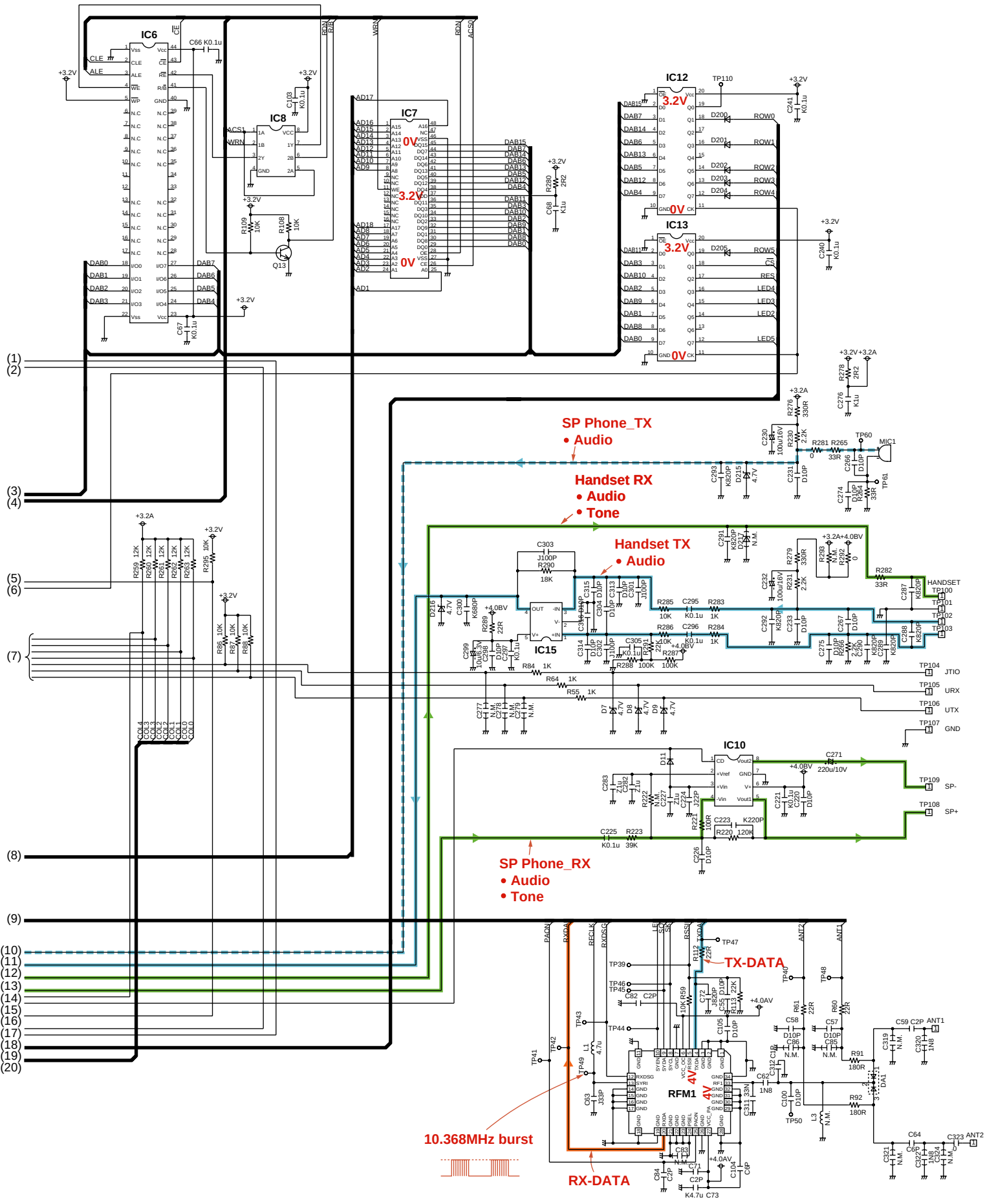


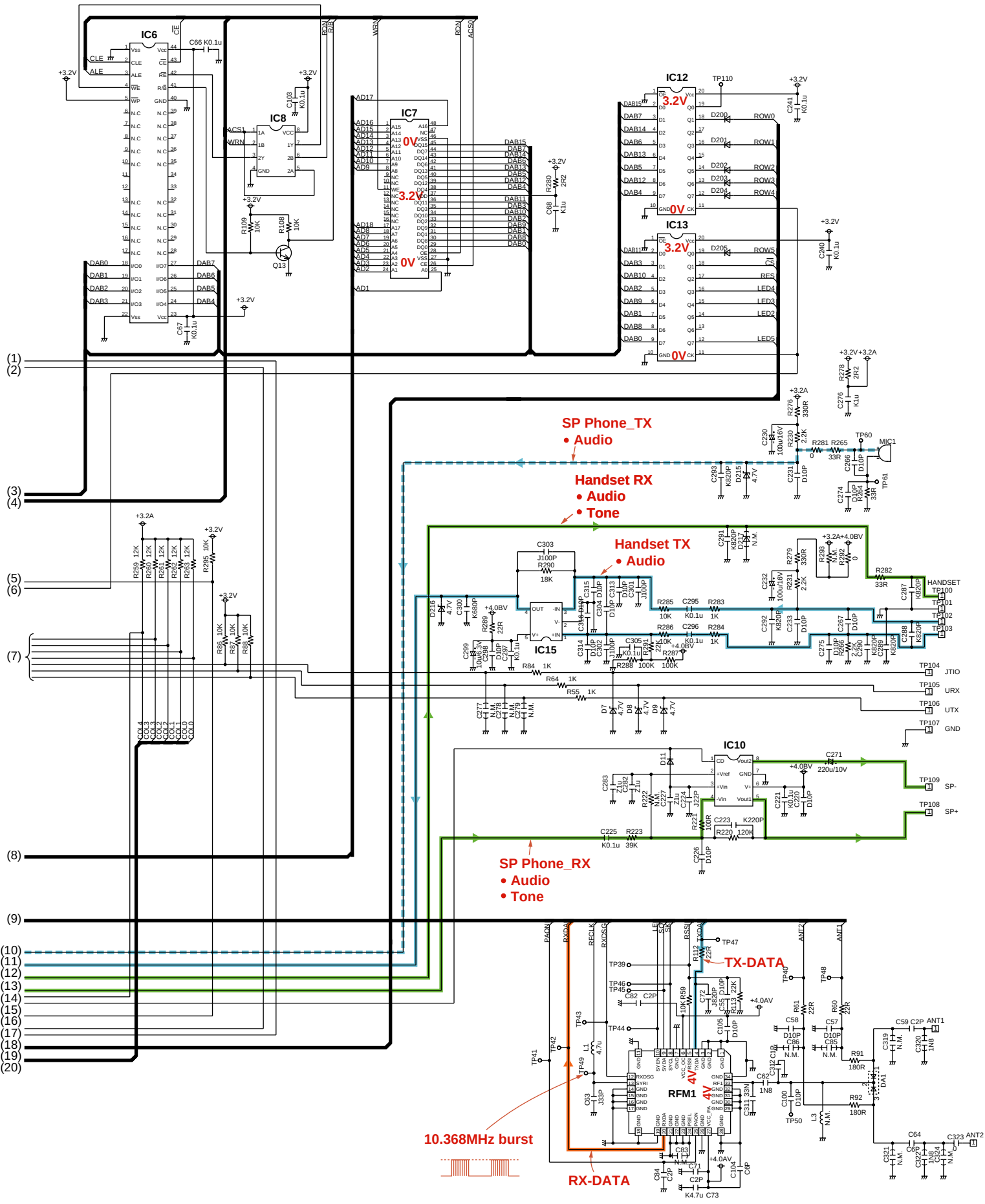
KX-TCD540NZM BLOCK DIAGRAM (BASE UNIT)



KX-TCA154AZM BLOCK DIAGRAM (CORDLESS HANDSET)


Line Voltage
48V DC (When ON-Hook)
10V DC (When OFF-Hook)
10V DC (When OFF-Hook)
0V DC (When ON-Hook)
Loop Current
TX_AF
• Audio
• SMS (TX)
RX_AF (When OFF-HOOK)
• Caller waiting
• Audio
• SMS (RX)
RX_AF (When ON-Hook)
Caller ID, Bell Signal
Bell signal
3.2V DC
1.8V DC
Caller ID at
ON-HOOK
800mV p-p
10.368MHz
IC1
IC2
IC3
IC14
No Components


IC6
IC8
IC7
IC12
IC13
IC15
IC10
RFM1
SP Phone_TX
• Audio
Handset RX
• Audio
• Tone
Handset TX
• Audio
SP Phone_RX
• Audio
• Tone
TX-DATA
RX-DATA
10.368MHz burst
3.2V
0V
4V
+4.0BV
+3.2A
+3.2V
+4.0AV
HANDSET
MIC1
JTIO
URX
UTX
GND
SP-
SP+
ROW0
ROW1
ROW2
ROW3
ROW4
ROW5
LED2
LED3
LED4
LED5
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)
(10)
(11)
(12)
(13)
(14)
(15)
(16)
(17)
(18)
(19)
(20)


IC6
IC8
IC7
IC12
IC13
IC15
IC10
RFM1
SP Phone_TX
• Audio
Handset RX
• Audio
• Tone
Handset TX
• Audio
SP Phone_RX
• Audio
• Tone
TX-DATA
RX-DATA
10.368MHz burst
3.2V
0V
4V
+4.0BV
+3.2A
+3.2V
+4.0AV
HANDSET
MIC1
JTIO
URX
UTX
GND
SP-
SP+
ROW0
ROW1
ROW2
ROW3
ROW4
ROW5
LED2
LED3
LED4
LED5
(1)
(2)
(3)
(4)
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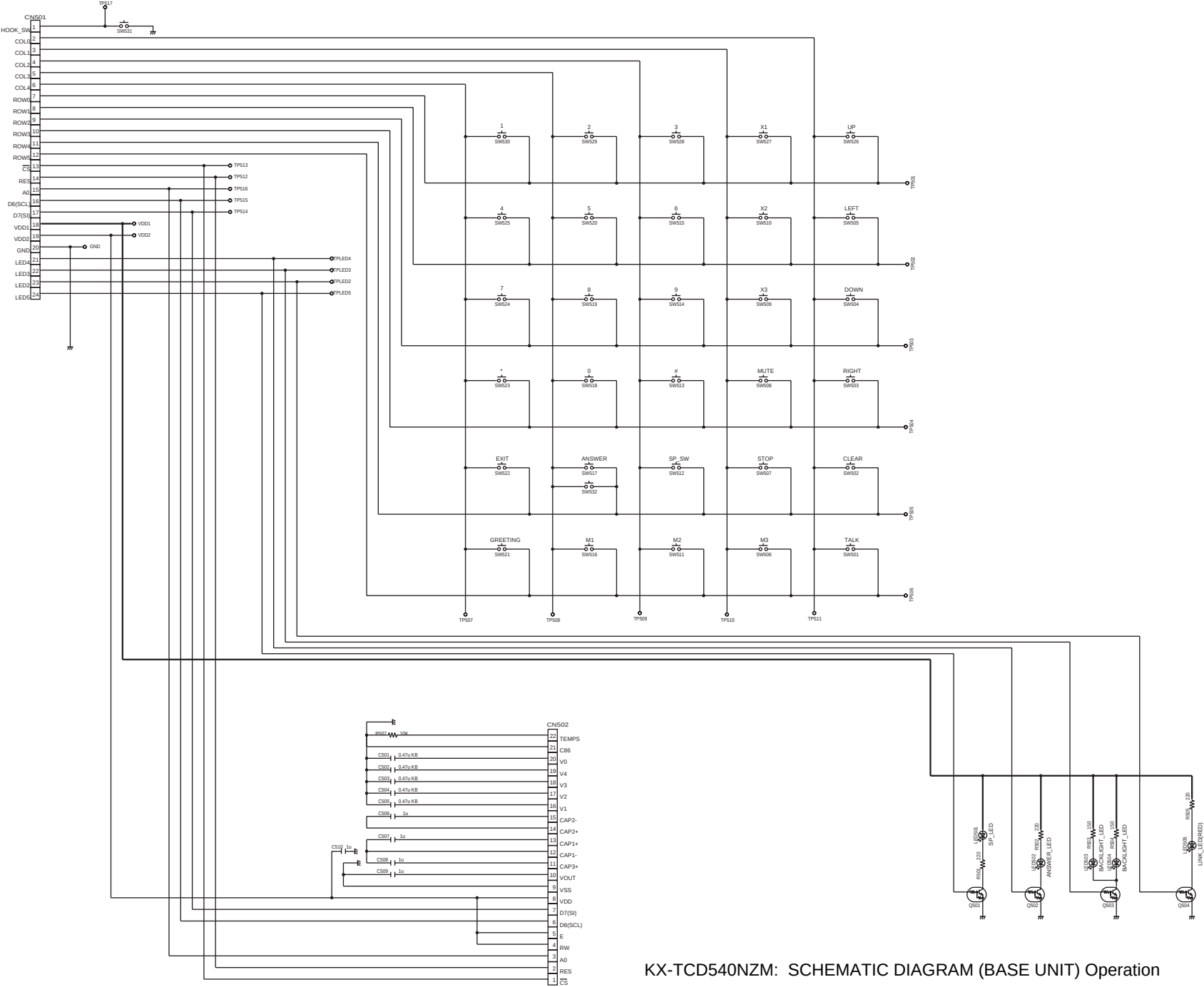

KX-TCD540NZM: SCHEMATIC DIAGRAM (BASE UNIT) Operation